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ABSTRACT

This case study identifies valid indicators of teacher education program quality selected from: (1) 15 interviews of purposefully sampled faculty members and all administrators of a teacher education program at an urban university, obtained with a 12-page interview guide and 5 written prompts; and (2) an analysis of scales of self-efficacy, teaching orientations, educational beliefs, and career plans. The purpose of the study was to assess program impact on a matched sample of 227 entering and graduating teacher candidates from a 5-year data bank (1984-89). The indicators focus on the commonalities across 5-year programs in early, middle, secondary, and special education and 4-year programs in physical, art, music, and theater education. Indicators of program quality assess the acquisition of a liberal education, pedagogical knowledge, development of pedagogical reasoning, and other valued outcomes (self-efficacy, conception of teaching, professional beliefs, multicultural sensitivity, and teaching commitment). Measures include five program-developed instruments, three nationally developed standardized tests, and one state-developed observational instrument. Instruments include standardized paper and pencil tests, self-report measures, and both high- and low-inference classroom observational ratings. The goals of the project are to identify the underlying conceptions of teaching embedded in the teacher education program, to determine valid indicators of program quality, and to design a comprehensive teacher education data-based plan which contains these conceptions and indicators. Appendixes comprise the greater part of the document. An analysis of interviews, the interview guide and prompts, an analysis of the surveys, and a description of the measures used for indicators of teacher education program quality are appended. (Author/JD)

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DATA-BASED TEACHER EDUCATION EVALUATION:

TOWARD AN INDICATOR SYSTEM OF PROGRAM QUALITY

Sally Schumacher
and
Kathleen Cauley

Virginia Commonwealth University
School of Education
Richmond, VA
1990

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ABSTRACT

Data-Based Teacher Education Evaluation:
Toward an Indicator System of Program Quality

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This case study identifies valid indicators of teacher education program quality selected from: 1) 15 interviews of purposefully sampled faculty members and all administrators of a teacher preparation program at an urban university obtained with a twelve-page interview guide and five written prompts, and 2) an analysis of scales of self-efficacy, teaching orientations, educational beliefs and career plans to assess program impact on a matched sample of 227 entering and graduating teacher candidates from a five year data bank (1984-1989).

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Implications of this study addresses issues relating to the development and use of an indicator system for teacher education program quality.

PREFACE

Many people contributed to this endeavor. Our efforts were initiated in 1984 as we began to think through the evaluation issues surrounding the teacher education program and commenced data collection. Much has occurred since then in the research about teaching, teacher development and teacher education. Many teacher education institutions have responded by restructuring their teacher preparation curricula. Program evaluation, once again, needed to be addressed, reconceptualized, and re-designed at Virginia Commonwealth University.

We gratefully acknowledge the support of our colleagues at the School of Education, Virginia Commonwealth University, all of whom are too numerous to name. We especially thank those who shared their insights in the interviews and the School of Education Task Force on Assessment from which we drew additional information. Our consultants, Dr. David Bauer of the College of Humanities and Sciences at Virginia Commonwealth University and Dr. Carl Chafin of the Chesterfield County Public Schools offered critical suggestions. Our capable research assistants for the pre-post analysis were Karen McFadden and Ellen Walk.

We deeply appreciate the guidance of Dean John Oehler of the School of Education and his continued support during the entire effort from 1984 though 1990.

Finally, we thank the Commonwealth Center for the Education of Teachers who provided the funding for this project in 1989-1990. We hope the project results will be shared with those concerned about teacher education.

Sally Schumacher
Kathleen Cauley

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DATA-BASED TEACHER EDUCATION EVALUATION: TOWARD AN INDICATOR SYSTEM OF PROGRAM QUALITY

CHAPTER 1 - INTRODUCTION

Most teacher education programs in United States recently reexamined their programs and revised or restructured teacher preparation for initial certification. In addition to the calls for reform, the state of Virginia also provided guidelines within which teacher education programs were to be restructured. The School of Education of Virginia Commonwealth University, similar to other teacher education units, colleges, and schools, restructured its program in an extensive and lengthy process. The process involved multiple university-wide committees about the nature of undergraduate education and selective interdisciplinary committees about the nature of teacher preparation. Upon completion of the process, a need existed to identify the underlying conceptions of teaching which informs teacher preparation and valid indicators of program quality for teacher education.

PROJECT GOALS AND OBJECTIVES

The goals of this project are 1) to identify the underlying conceptions of teaching embedded in the teacher education program to determine valid indicators of program quality and 2) to design a comprehensive teacher education data-based plan which contains these conceptions and indicators.

The data-based plan focuses on the commonalities across several degree programs, i.e. B.S., B.A., and M.A.T. The design is comprehensive to include both extended programs and four year programs. The extended programs (five year) are early, middle, secondary and special education and the four year programs are physical, art, music and theatre education. Although effective

teaching requires "specialized knowledge structures" that teachers can use to interpret situations, plan appropriate strategies and enact these strategies in classrooms, and although "teacher's knowledge is richly particularistic and situational" (Carter & Doyle, 1989, p. 56), this project focused only on those programmatic elements which are common to teacher education rather than the particular transformation of content, instruction, evaluation and reflection applied to specialized areas of instruction such as mathematics or social studies (Anderson, 1989; Shulman, 1987). These goals were achieved through the following objectives:

1. To identify the underlying conceptions of teaching embedded in the teacher education program and indicators of program quality from multiple sources, including faculty and administrators, program documents, and literature on teacher education and teacher development.

2. To analyze data in the five year VCU teacher education data bank (1984-1989) from the Entering Teacher Candidate Survey (ETCS) and the Graduating Teacher Candidate Survey (GTCS) and evaluate the usefulness of items on each survey for the restructured teacher education program.

3. To revise the present Entering Teacher Candidate and Graduating Teacher Candidate Surveys to contain content valid items and appropriate scales for the teacher developmental phase expected upon completion of the program and which are indicators of program quality.

4. To design a comprehensive teacher education data-based plan using multiple data collection methods for valid input, process, and output indicators of program quality.

INDICATOR SYSTEMS

Local school districts, state departments of education and federal agencies, such as the Department of Education and the National Science Foundation, have been active in trying to improve the quality and usefulness of data and information on education. Many of these efforts have been aimed at developing and implementing a system of educational indicators that would regularly inform policy-makers, the public, educators, and researchers about the extent of progress in improving education in schools. Performance reporting which permits comparisons among

school districts is now operative in 22 states (Cibulka, 1989). In 1984, the Council of Chief State School Officers adopted a far reaching shift in its policy to establish the State Educational Assessment Center to coordinate the development, analysis, and use of state-level data to report state-by-state results.

Similar concerns about the need for carefully designed, collected, analyzed and reported data about teacher education prompted the American Association of Colleges of Teacher Education to establish the Research and Information Committee and to initiate the Research about Teacher Education (RATE) project in 1984. The RATE project has produced four well designed, carefully collected and analyzed reports since 1987. Participants in the RATE project have frequently reported that the data collection within their institution lead to increased awareness of the need for better coordination and systematic data collection and analysis for various purposes.

A review of the literature from the discussions and research on the development and implementation of indicator systems for public education can inform discussions among teacher education institutions as they address various data-based needs. These needs might take the form of descriptive statistics for monitoring and managing a teacher education unit, specialized studies to evaluate teacher education programs for program improvement, or the reporting of data to decision-makers within the university environment and various publics concerned about accountability, program quality and the allocation of resources.

Definition. Indicator systems provide broad political intelligence about the health of a system. The usefulness of an indicator system depends on its ability to show what happens over time, what it can say about an educational program compared to other programs, or how the condition it measures compares with societal expectations. Kaagan and Coley (1989, p. 6) state:

> Carefully crafted and gathered statistics are the basic building blocs of indicator systems. These statistics are derived from a test, a survey, a collection of information on important aspects of the educational system....The statistics are designed to be useful in describing some quantitative or qualitative aspect of the educational system.

Although teacher education institutions have traditionally used some form of program monitoring and program evaluation is becoming more prevalent (Galluzo, 1986), indicator systems of teacher education programs are not currently used by either state policy-makers or teacher education institutions.

In creating a system to be useful, judgement calls are necessary in the selection of indicators because some measures have greater validity and present values than others. For example, the number of teacher candidates who complete a final clinical experience at a specific level of professional development appears more important than knowing the square footage of university space used in a teacher education program. In contrast to program evaluation of specific changes or desired outcomes, an indicator system needs to be an open system and have a continuity over a period of time to be useful when an aspect of the educational program becomes an issue.

To develop a teacher education indicator system requires having the key participants articulate the goals of the program and what they consider valid "signs" of the health of the program (Oakes, 1986). Obtaining consensus is not an easy task. Once consensus is attained about what is important, then it is essential to quantify these factors.

A statistic, despite the importance of the phenomenon it measures, has modest usefulness. The ideal indicator must have a point of reference to provide meaning for the number, e.g., a percent with reference points of zero to 100, a comparison over time, or a comparison by programs or institutions. Some indicators may have several reference points. A valid indicator assumes some common understandings, i.e. concept of teaching knowledge, pedagogical

knowledge, or pedagogical reasoning (Smith, 1988). Furthermore, an indicator should provide at least one of the following types of information: performance of the program, features of the program known to be linked with desired outcomes, central features of the program, potential or existing problem areas, or policy relevant data. To be manageable, an indicator system measures selected features of the program which are "enduring, easily understood, feasibly measured and generally accepted as valid and reliable statistics" (Richards, 1988, p. 496).

An indicator system is a framework into which an array of indicators are placed for review and analysis, leading to necessary modifications of policy and practice. Indicators can be used to describe the conditions or changes in the conditions of different components of the educational system. The descriptive use of indicators answers the question "What is happening?" Indicators can also be used to analyze relationships among components of the system or changes in the system. The analytic use of indicators addresses the question "Why might it be happening" (Goertz & King, 1989). Indicators are organized so that relationships among them can be examined. The most widely accepted framework for presenting such data is the input, process, outcome model (Blank, 1989; Goertz & King, 1989). A general model is illustrated below.

INSERT FIGURE 1
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In an input, process, outcome model for teacher education programs, multiple indicators are necessary. Outcomes comprise some results expected of teacher preparation; process identifies the program ingredients most directly responsible for outcomes; and inputs represents selected crucial, but less malleable, program and non-program characteristics that have well documented effects on outcomes. These input or context variables are seldom within the control of the program or university. An example of an input measure is a standardized test score for

A BASIC MODEL OF TEACHER EDUCATION PROGRAM

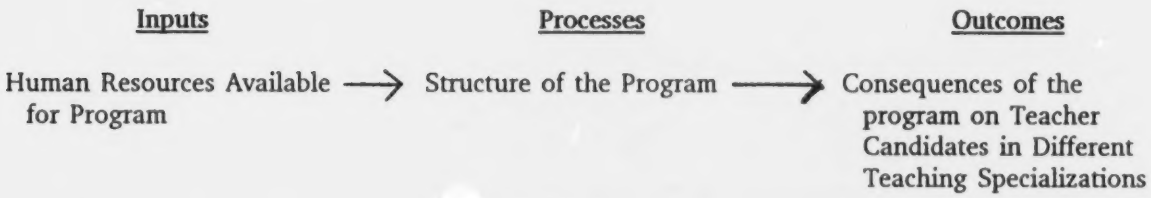

FIGURE 1

admission to the university; a process measure is the G.P.A. in the academic major or in professional education, an outcome measure is the teacher candidate pedogical reasoning and teaching skills assessed by the Final Clinical Evaluation Rating.

Functions of Indicator Systems. The intended function of the indicator system influences the design of the system and the selection of indicators. An indicator system may be used for four purposes: 1) to provide simple information to reveal the operation of the program to faculty and administrators, decision-makers within the university and to external agencies; 2) to determine whether the teacher education program is successful; 3) to suggest areas of further study that may produce evidence on which to base policy changes and program shifts and 4) accountability (Kaagan & Coley, 1989). The first three purposes are not directly linked to institutional action, i.e. the number of teacher candidates who took remedial courses may rise or fall and not lead to a specific program response. This type of indicator system gauges the health of a program, but does not explain the causes of its health (David, 1988). Instead, such an indicator system suggests specific areas in need of further investigation. Thus, the system generally provides information about how well or poorly the program is doing and provides some contextual information in which to couch the results.

A more complex function of this type of system would require either an absolute standard of "program success" or, at least a minimum criterion of a desired outcome. This type of indicator system could be designed to investigate pre-post measures of selected valued outcomes of teacher education candidates.

The third possible function of an indicator system, providing evidence for dramatic policy changes and program shifts, would require multiple input and process indicators to isolate specific variables and determine their relationship to desired outcomes. Drawing on the efforts of many

states to develop indicator systems for monitoring and holding local districts and schools accountable, J. Oakes (1989) argues for inclusion of context features (input and process statistics) in any indicator system. Educators, including faculty and administrators, place a high value on the quality of the resources, people, and activities that shape the daily experiences of students. Second, because only a small range of the results of schooling can be measured, context indicators may caution educators from placing undue emphasis on these limited measures. Third, even though it is not fully understood how schools produce the results they want, context information may provide cues about why certain outcomes occur, identify strengths and problem areas, and add important information about how to improve educational programs. However, there are considerable obstacles of empirical uncertainty, insufficient measurement technology, identification of the context variables and feasibility.

Context indicators provide information to more fully capture the performance of the unit, can balance the effects of outcome indicators, i.e. "high stake" decisions linked to test scores, and enhance the policy relevance of an indicator system. Contextual information permits analysts to disaggregate outcome data by important subgroups of students beyond the conventional division by race, gender, or age by looking at educational contributions to outcomes, i.e. admission criteria or course enrollment such as remedial, typical, or honors. This can generate clues about areas for program improvement.

Indicator systems which include context measures, however, cannot possibly provide all the complex and interactive data researchers and decision-makers need to understand the relationships among the multitude of program characteristics and education outcomes. As with outcome measures, however, "a central paradox is that context features that are most easily recognized, measured, and reported may be the least likely to provide useful insights into school

[program] quality" (Oakes, 1989, p. 195).

An altogether different function of an indicator system is to hold individuals, both faculty and administrators, accountable for the results. This purpose is substantially different from the prior three functions of an indicator system. "When there are direct consequences, tangible or intangible, attached to numbers, the burden on system quality mushrooms" (Kaagan & Coley, 1989, p. 11). This is a substantially different use of an indicator system by faculty and administrators for determining program direction, supporting it, and implementing it. Some individuals, however, advocate only the accountability function of indicator systems. Murname (1987), drawing on the experience of economic indicators, would prefer the resolution of generic indicator problems, i.e. better measures of the system outputs, determining appropriate levels of data disaggregation, and explaining trends in outcome indicator data. He suggests context data can easily be misinterpreted and shifts in policy-makers' and researchers' interests make context data less useful over time.

Issues and Concerns. A number of issues and cautions have been suggested as states move from some form of an accountability system to some form of an indicator system for the quality of public schooling (Bland, 1989; Goertz & King, 1989; Kaagan & Cooley, 1989; Porter, 1988). Several of these concerns seem appropriate to mention if teacher education institutions move in this direction.

The agency needs the capacities, organizational norms, and certain features to provide a firm foundation for a successful indicator system. 1) The database should be comprehensive and well integrated for the purpose of the agency. Indicator systems require mainframe computer capacity and technical resources. 2) The agency has analytic ability - however modest. This analytical capacity involves the creation of predictive models, the design of special studies, and

the search for relationships which might provide some evidence to link what is happening to possible explanations. Creative researchers need partial autonomy. 3) Coordination should be firm for unit wide data gathering, analysis and reporting functions. The design and implementation of an indicator system takes a team effort, sustained resource allocation and a long-term commitment.

A team effort is important in deciding the purpose, design, and the unit of data collection, analysis and reporting. The selection of input, process, and outcome indicators addresses the need for measurement balanced with parsimony. Careful considerations must be given to the unit of data collection, analysis and reporting. Subgroup analysis and special studies will make certain demands on the design of the indicator system. The ideal is "more analysis" and "less reporting" of data until the indicator system can be firmly established.

The principles developed for the State Science/Math Indicator Project for the Council of Chief State School Officers State Education Assessment Center (Blank, 1989) provide insights from a 10 state pilot study. Some recommendations were: be inclusive of the curricular, i.e. not the common demoninator; use a relatively simple framework for assessment objectives to facilitate the interpretation of test results; report more information than an average test score; and report demographic data as well as measures of programs.

Other concerns focus on the potential impact of indicator systems on its participants - especially administrators and teachers (Porter, 1988). Although few studies focus on program improvements attributed to reporting indicator data, some research suggests that specific improvements were attributed to the reporting of such data (Cibulka, 1989).

At present no teacher education program indicator system is implemented either by state agencies or universities. Although there is no data to confirm, we expect the potential uses and

benefits to be far reaching for a teacher education program's internal monitoring and program evaluation and for reporting program quality to external publics.

DESIGN AND METHODOLOGY

The design of the indicator system for the teacher education program was developed from two research activities. Several committees reviewed the program model and the proposed design. In addition, two consultants critiqued the revised Entering and Graduating Teacher Candidate Surveys and the proposed design of the indicator system. In each phase of the project, appropriate literature was consulted. Each of these activities is described below.

Qualitative Interviews: Program Model and Possible Valid Indicators of Program Quality

Data were collected through in-depth interviews using a grounded theory approach (Glaser & Strauss, 1967) in ethnographic research to identify the program model, the underlying conceptions of teaching which informs the program model and possible valid indicators of program quality. Fifteen faculty members and administrators were selected through purposeful sampling strategies (Patton, 1990; Goetz & LeCompte, 1984), to obtain the perspectives of key informants from each teaching specialty. The criteria for interviewee selection were: 1) participated in multiple university committees, task forces and workshops in teacher education program planning from 1985 to the present; 2) participated in national and regional conferences about teacher education (i.e. Holmes Group, AACTE, and teaching specialization organizations); 3) recognized as leaders in their program area or institutional position; and 4) worked in their professional education specialization for a minimum of 15 years. The eight faculty represented teaching specializations in early childhood, middle, secondary, physical, special, art, music, and theatre education. The sample also included all seven administrators (Deans and Division Heads).

Perspectives of the interviewees were elicited by a faculty member in the advanced graduate programs who did not directly participate in the program planning processes, but did attend national and regional conferences in teacher education. Each interview lasted 1 1/4 to 1 3/4 hours from October, 1989 to March, 1990.

The 12-page interview guide elicited participants perceptions on the following topics: teacher development, conceptions of teaching, outcome indicators of knowledge and teaching skills, process indicators, alumni indicators and other indicators such as confidence level in teaching skills, career plans/aspirations, conceptions of education, and educational beliefs. Other information sought was indicators of program quality by specific teaching specializations needed, frequency of data collection, and other comments. The questions were open-ended, flexible, and could be followed by any of 24 probes to elicit participants' deeper meanings. During the interview, there were four written prompts to corroborate interviewees' subtle and complex perspectives on the six topics. After the second person was interviewed, a fifth written prompt was added because of the importance attached to the Final Clinical Evaluation Form.

The five written prompts focused on the phase of teacher candidate cognitive development expected at program completion, orientation of teaching, orientation of instructional intent, ten crucial belief statements identified in a prior study (Schumacher, Esham & Bauer, 1985) and the rating form for the final clinical experience. Each person was asked to check the phase of teacher cognitive development (Berliner, 1988) s/he expected of program graduates. Brief descriptions were presented for novice, advanced beginner, competent, proficient, expert without identifying the years of experience suggested by Berliner. Interviewees rated the importance of five different orientations to teaching and four different orientations by instructional intent. Interviewees confirmed or revised ten educational belief as appropriate for the teacher education

program. The final prompt requested interviewees to take the teacher cognitive development phase that was previously selected and indicate on the Final Clinical Evaluation Form how to interpret the ratings of "excellent", "above average", "average", "below average", and "poor." The interview guide and the five written prompts are in Appendix A.

Data analysis was inductive and conducted in phases. Upon completion of the faculty interviews, a preliminary analysis identified the initial categories and patterns. The faculty data was sorted, then categorized and ordered through constant comparison strategies (Glaser & Strauss, 1967; Lincoln & Guba, 1985; Goetz & LeCompte, 1984; Taylor & Bodgan, 1984; Strauss, 1988). Upon completion of the administrator interviews, the same process was used. The ratings on the prompts were compiled. Throughout data analysis, the researcher searched for negative or discrepant evidence and triangulated (Denzin, 1978) different interviewees and participant statements with ratings and program documents. In the last phase of data analysis, the theoretical model and program model was developed with data displays, i.e. figures and flow charts (Miles & Huberman, 1984) accompanied with descriptive contextual data and illustrative participant statements. To protect the confidentiality of the interviewees, all persons are referred to as faculty or administrator when relevant.

Analysis of ETCS and GTCS

The Entering Teacher Candidate Survey (ETCS) and the Graduating Teacher Candidate Survey (GTCS) are adaptations of instruments developed by Michigan State University (Schumacher, Esham, & Bauer, 1985). The adaptation of the ETCS was field tested in Fall, 1984, and three items were slightly revised. The adaptation of the GTCS was field tested during Fall, 1985, and a number of items from the RATE survey were added for Spring, 1986.

The 200 items on the ETCS provide a number of components that are designed to give

comprehensive information on the students who enter the teacher education program. These components include demographics, high school background and activities, college background, career plans, reasons for becoming a teacher, orientation to teaching and education, educational beliefs, and self-efficacy of teaching roles. The 156 item GTCS repeats questions from the ETCS about educational beliefs, orientation to teaching and education, self-efficacy, and career plans, and adds items that critique the program.

The ETCS was administered each fall and spring semester from 1985 through 1989 to the students during the first week of the semester in which they took their first course in the teacher preparation program. All students in the student teaching seminar from Spring, 1986 through Spring, 1989 were asked to complete the GTCS during the last week of the semester. In all, 1,125 entering surveys, including many from non-education students who took the courses, and 443 graduating surveys were entered into the data set.

The set of ETCS data and the set of GTCS data were merged by the social security number of the respondant. The merged set resulted in 227 matched questionnaires (105 elementary, 85 secondary, 26 special education, and 11 physical education and other education students) on which the analyses presented are based. The failure to match all 439 graduating surveys could be due to a number of factors, including errors in social security numbers, and no available entering questionnaire because the students declined to participate or took the entering courses during the summer semester. The final sample is largely white (94%, 5% Black, 1% Asian or Hispanic) and female (76%). Forty-six percent entered the teacher education program at 21 years of age or younger; 42% were between the ages of 22 and 30; and 12% were over 30 years of age. Additional demographic data are provided in Appendix C.

With the exceptions noted in Appendix C, obvious errors and invalid codes were treated as missing data. Subjects with missing data were only eliminated from the analyses of the affected variables. The analyses performed were descriptive and inferential. Primarily Chi-square analyses were used to compare pre-post differences, differences in frequency of response among students in different majors or with other characteristics of interest. In addition, the scores for the 15 items on the self-efficacy scale were summed and the internal consistency of the scale was determined to be .95. A repeated measures analysis determined the difference in the total scale score from entering to graduating. Reliability analyses (alpha coefficients) were performed on the subscales of the educational beliefs inventory in an effort to replicate Brouseau, Book, and Byers (1988). See Appendix C for a more complete description of the methodology and results.

CHAPTER 2

THEORETICAL AND PROGRAM MODEL OF TEACHER EDUCATION

A theoretical model derived from essential knowledge and current research in teacher education informs the professional teacher education programs at Virginia Commonwealth University. The theoretical model underlies the teacher education program model for both extended programs (five year) and the four year programs. The five year programs include early, middle, secondary and special education and the four year programs include physical, art, music and theatre education.

This Chapter describes how the underlying theoretical model derived from recent research relates to the teacher education program model for all eight teaching specializations at the university. The model is first presented and followed by faculty and administrators' perspectives for each phase of teacher candidate development.

The identification of the theoretical and program model is essential in planning an indicator system to gauge program quality. The specification of processes and outcomes in addition to inputs serve as the framework for selecting valid but parsimonious indicators.

Development of the Teacher Education Program Model

The program model developed from the work of multiple university interdisciplinary committees since 1985. Faculty and administrative collaboration occurred in workshops, committees and task forces among 1) the different teacher education programs, 2) the School of Education, the College of the Humanities and Sciences, and the School of the Arts, and 3) various university-wide committees. The original planning was for an extended five year teacher education program. The Virginia mandate for restructured teacher education programs, however,

required all candidates for initial certification to earn a B.A. or a B.S. degree in a liberal arts or sciences academic major. Additional teacher education program planning occurred from 1988 to the present. Thus, the theoretical and program model which underlies all eight four and five year teacher education programs evolved from changing circumstances and as recent research in teacher education and teacher cognitive development was presented, published, and circulated among faculty and administrators.

The theoretical model underlying the program model was identified through in-depth interviews using a grounded theory ethnographic research approach (Glaser & Strauss, 1967). Appendix A contains the data analysis. The program model was identified through interviews and program documents from 1985 to the present.

Figure 2: Conceptual and Program Model for Teacher Education at Virginia Commonwealth University is presented. An overview of both models from faculty and administrative perspectives and related literature is presented first for Phase 1 general education (process) in Figure 2. The teaching knowledge base, the selection of the academic major, the acquisition of pedagogical knowledge and the beginning development of pedagogical reasoning in clinical and simulated experiences in Phase 2 (process) is then discussed with the related literature and faculty perspectives. Phase 3 (outcome) is the continued development of pedagogical reasoning and teaching skills, especially in the final clinical experience, and the expected level of attainment by teacher candidates in the program model. The data confirm that the teacher education faculty are cognizant of the philosophy and knowledge base which undergirds programs. The knowledge bases are an integral part of faculty intentions as they individually implement and guide teacher candidates through the acquisition of the teaching knowledge base, the pedagogical content knowledge and the beginning development of pedagogical reasoning and teaching skills.

INSERT
FIGURE 2
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Phase 1: General Education in Liberal Arts (Theoretical Model) and General Studies (Program Model)

The dominant conception of teaching which informs all teacher education programs was that of a "liberally educated person with proficiency in an academic major, i.e. a B.A., B.S. or its equivalent in the fine arts", as one professor expressed it. This meant an "increased academic preparation in the arts and sciences because of the importance of the knowledge base." A consistent theme expressed by faculty and administrators was "the teacher as a decision-maker, i.e. using both academic and professional knowledge to analyze classroom practice, to evaluate, and to plan new tactics."

L.S. Shulman (1987) suggests that a teacher candidate "must have not only depth of understanding with respect to the particular subjects taught, but also a broad liberal education that serves as a framework for old learning and as a facilitator for new understanding" (1987, p. 9).

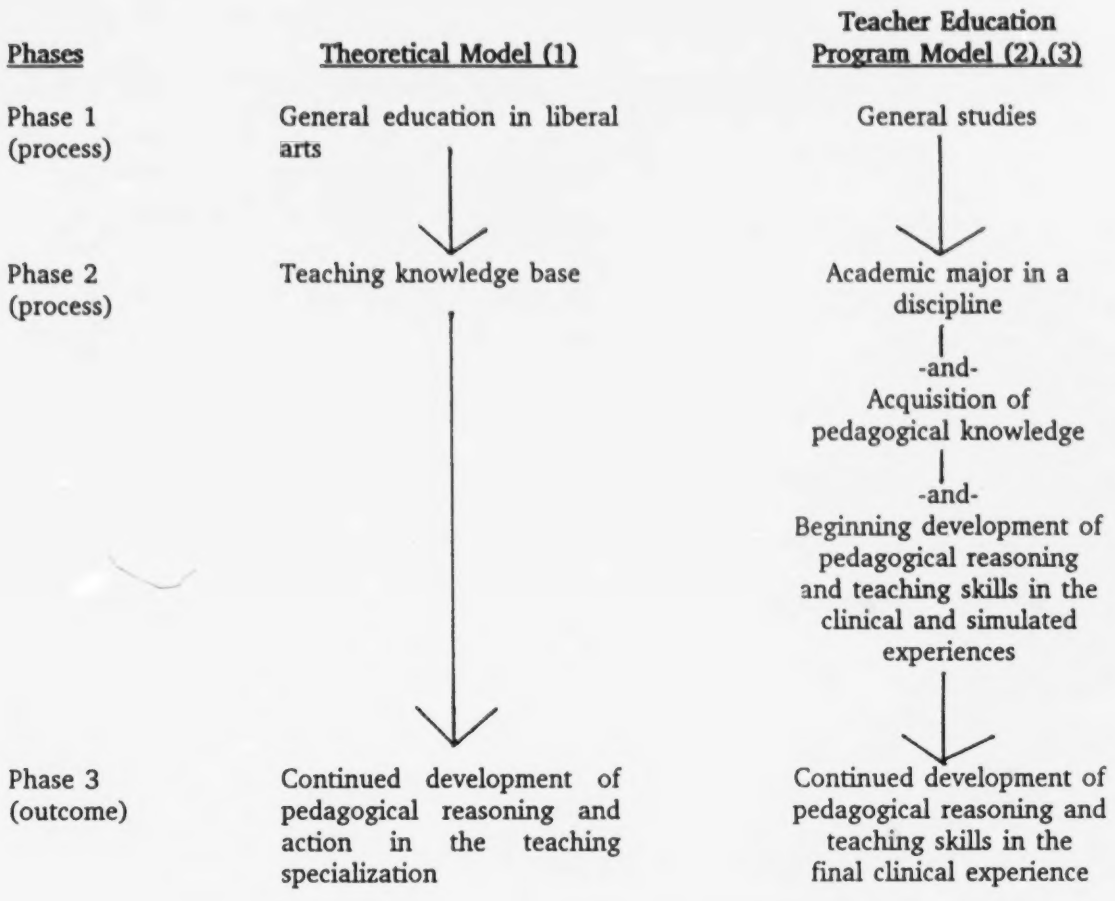
In the Teacher Education Program Model, a broad liberal education is acquired primarily in Phase 1 General Studies. A candidate for a liberal arts degree must earn specified hours of credit in communications, science and mathematics, history, philosophy, literature and the arts during their first years at the university.

Phase 2: The Teaching Knowledge Base (Theoretical Model) and Pedagogical Knowledge Base (Program Model)

The teaching knowledge base in the Theoretical Model of Phase 2 is derived primarily from Wilson, Shulman, and Richert (1987) and Shulman (1987). The Teacher Education Program

FIGURE 2

CONCEPTUAL AND PROGRAM MODEL FOR TEACHER EDUCATION
AT VIRGINIA COMMONWEALTH UNIVERSITY


Phases
Theoretical Model (1)
Teacher Education Program Model (2),(3)
Phase 1 (process)
General education in liberal arts
General studies
Phase 2 (process)
Teaching knowledge base
Academic major in a discipline
-and-
Acquisition of pedagogical knowledge
-and-
Beginning development of pedagogical reasoning and teaching skills in the clinical and simulated experiences
Phase 3 (outcome)
Continued development of pedagogical reasoning and action in the teaching specialization
Continued development of pedagogical reasoning and teaching skills in the final clinical experience

1. The theoretical model is primarily based on L.S. Shulman (1987), Knowledge and teaching: Foundations for a new reform, Harvard Educational Review, 57 (1), 1-27 and D.C. Berliner (1988), The development of expertise in pedagogy, Charles W. Hunt Memorial Lecture. Washington, D.C.: American Association of Colleges for Teacher Education.

2. Early, Middle, Secondary and Special Education apply this model in a five year extended program.

3. Physical, Art, Music and Theatre Education programs apply this model in a four year program.

Model integrates the academic major and pedagogical knowledge with the beginning development of pedagogical reasoning. Because of the integration of the specialty and professional studies in the program, the teacher candidate begins to pedagogically orient the academic major toward the selected teaching specialization.

There was a common assumption, as one professor said, "that it was better to **integrate theory and practice** and to have a continuing experience in academic areas in undergraduate and graduate levels, including consumer research competency, and **a continuum of clinical experiences from an early (practicum) to a final experience (student teaching or externship).**" Ratings on a written prompt confirmed that the dominant conception of teaching embedded in all teacher education programs is that a teacher is a liberally-educated person who is competent in pedagogical skills and oriented toward problem-solving and reflective inquiry in their teaching specialization.

The Teaching Knowledge Base in the Theoretical Model

Shulman elaborates at least four major sources for the teaching knowledge base: "(1) scholarship in content disciplines, (2) the materials and settings of the institutionalized educational process(for example, curricula, textbooks, school organizations and finance, and the structure of the teaching profession), (3) research on schooling, social organizations, human learning, teaching and development, and the other social and cultural phenomena that affect what teachers can do, and (4) the wisdom of practice itself" (Shulman, 1987, p. 8). A teacher must understand the structures of subject matter, the principles of conceptual organization, and the methods of inquiry that assist in the selection of important ideas and skills in the subject domain as they change over time.

Selection of the Academic Major in the Program Model (Specialty Studies)

All teacher candidates select an appropriate academic major by their second or third year of college. For candidates planning to be certified in secondary, art, music, theatre and physical education, the recommended undergraduate major is the discipline most closely related to the school subject. For candidates planning to be certified in early and special education, the undergraduate major is not specified for each program because there is no evidence that one undergraduate major is superior in the development of teaching skills (See Restructured Teacher Education Plan, p. 5). As one professor said, "These programs encourage student free choice of a major, but the natural inclination is [to chose] psychology or sociology in the early and special education programs. For candidates planning to be certified in middle school education, the candidate is recommended to major in a discipline most closely related to one of the middle school subjects -- mathematics, science, social studies or English.

Pedagogical Knowledge in the Program Model (Professional Studies)

All candidates have an initial clinical experience and complete educational foundation courses (Teachers College Record special theme issue, 1990) to orient their upper level courses in the academic major toward the selected teaching specialization. Because each teaching specialization differs in its pedagogical orientation of the academic major, there are multiple pedagogical orientations of the academic major applied in instruction. Examples of multiple pedagogical orientations of the academic major stated by interviewees are presented below.

> "For example, secondary education takes a discipline orientation; early and middle school education are student centered as is special education; special education also has a public policy orientation; and both early education and special education have a parent orientation."

> "The middle education program emphasizes both the knowledge base and the development of the student whereas special education's development of the student is not discipline-based."

> "Special education stresses behavioral skills; secondary education emphasizes the knowledge and related skills of the subject; and early and middle education emphasize the process of learning and the teacher as a facilitator in the child's construction of knowledge."
>
> "Teacher candidates have a greater understanding of the broader spectrum of education than just their own niche" (an administrator).

Teacher education programs do not deny their specializations, but place the specialization in a broader educational perspective.

Physical education encompasses both the public and private sector with its sport medicine, wellness, and physical activity focus. Each candidate can major in either physical education or health education with certification in the area not selected. If physical education is selected, the candidate can specialize in K-12, elementary or secondary education. Examples of interviewees perspectives are below.

> "Think of physical education as representing the body, the mind, and spirit."
>
> "We did a good job of training students as teachers, but we were not sure of the knowledge base...now, we are more assured that candidates have a knowledge base and we must be sure that they acquire teaching competency in a relatively short time."

Art, music and theatre education provide "discipline-based" program which include history of the arts, aesthetics, criticism, and studio. An example of the perspective is below.

> "The program develops candidates' aesthetic sensibility, ability to evaluate works of arts (one's own and others') and the creation of individual works of art. Candidates must be creative and competent in their artistic field. All of these elements are applied to instruction."

There are, however, some common pedagogical orientations of the academic major to classroom instruction across different teaching specializations. The most important pedagogical orientation by instructional intent is that of producing conceptual change in students, closely followed by skill acquisition and natural development of pupils, i.e. social and emotional

development. A fourth pedagogical orientation, which was rated less highly by interviewees but considered important, is provision of cultural transmission to pupils.

L.S. Shulman (1987) proposed categories of pedagogical knowledge. Shulman suggests, at a minimum, the categories essential for pedagogical knowledge include:

- content knowledge;
- general pedagogical knowledge, with special reference to those broad principles and strategies of classroom management and organization that appear to transcend subject matter;
- curriculum knowledge, with particular grasp of the materials and programs that serve as "tools of the trade" for teachers;
- pedagogical content knowledge, that special amalgam of content and pedagogy that is uniquely the province of teachers, their own special form of professional understanding;
- knowledge of learners and their characteristics;
- knowledge of educational contexts, ranging from the workings of the group or classroom, the governance and financing of school districts, to the character of communities and cultures; and
- knowledge of educational ends, purposes, and values , and their philosophical and historical grounds. (Shulman, 1987, p. 8)

Pedagogical knowledge, elaborated more fully in Reynolds (1989) and Woolfolk (1989), also begins teacher candidates' development of pedagogical reasoning.

Beginning Development of Pedagogical Reasoning in the Program Model
(Professional Studies)

Within the pedagogical knowledge courses, teacher candidates participate in clinical and simulated experiences. The simulated experiences take many forms such as developing instructional materials, writing units of instruction, analyzing curriculum, developing questioning techniques, writing analytical papers, reading research, and responding to instructional problem situations presented in class discussions, in case studies, or on course examinations. Clark and

Yinger's (1987) review of the preactive, planning phase of teaching suggests that teachers' skills lie in applying their knowledge in the process of problem formulation (or framing) and mentally experimenting with alternative frames and thinking through an eventual solution. As pedagogical knowledge is acquired throughout the program, teacher candidates are involved in successive frames and reframings of curriculum and instructional situations in schooling and possible strategies.

Phase 3: Pedagogical Reasoning and Action (Theoretical Model) and Pedagogical Reasoning and Teaching Skills (Program Model)

Pedagogical Reasoning and Action in the Theoretical Model

L.S. Shulman proposed a model of pedagogical reasoning and action. "Given a text, educational purposes, and/or a set of ideas, pedagogical reasoning and action involves a cycle through the activities of comprehension, transformation, instruction, evaluation, and reflection" (Shulman, 1987, p. 14). Chart 1 presents Shulman's model of pedagogical reasoning and action.

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Pedagogical Reasoning and Teaching Skills in the Program Model (Professional Studies)

Faculty members stated that the program outcome is imbedded in the application of the teaching knowledge base, including the academic discipline and pedagogical knowledge, in a particular instructional situation. Examples of this perspective are cited below.

"[It's the] application of knowledge in teaching".

"It [pedagogical reasoning] must be in the clinical setting."

"[Candidates should] break subject matter into components of instruction - an integration of subject material which is related to pupils."

CHART 1
A MODEL OF PEDAGOGICAL REASONING AND ACTION

Comprehension
Of purposes, subject matter structures, ideas within and outside the discipline

Transformation
Preparation: critical interpretation and analysis of texts, structuring and segmenting, development of a curricular repertoire, and clarification of purposes

Representation: use of a representational repertoire which includes analogies, metaphors, examples, demonstrations, explanations, and so forth

Selection: choice from among an instructional repertoire which includes modes of teaching, organizing, managing, and arranging

Adaptation and Tailoring to Student Characteristics: consideration of conceptions, preconceptions, misconceptions, and difficulties, language, culture, and motivations, social class, gender, age, ability, aptitude, interests, self concepts, and attention

Instruction
Management, presentations, interactions, group work, discipline, humor, questioning, and other aspects of active teaching, discovery or inquiry instruction, and the observable forms of classroom teaching

Evaluation
Checking for student understanding during interactive teaching

Testing student understanding at the end of lessons or units

Evaluating one's own performance, and adjusting for experiences

Reflection
Reviewing, reconstruction, reenacting and critically analyzing one's own and the class's performance, and grounding explanations in evidence

New Comprehensions
Of purposes, subject matter, students, teaching, and self
Consolidation of new understandings, and learnings from experience

(Shulman, 1987, p. 15)

"To get at pedagogical reasoning, [you] must have candidates give their rationale - I don't want decisions done mechanically."

Faculty uniformly viewed the ultimate outcome of the teacher education program as the development of teacher candidates' pedagogical reasoning. Clinical experiences at school sites and simulated experiences in university professional education classes provide opportunities for continual development. Of crucial value is the final clinical experience (student teaching or externship) in the application of pedagogical knowledge through continued teaching, reasoning and reflection. Examples of faculty and administrative perspectives are cited below.

"Student teaching [externship] is an opportunity for feedback. It is not reality based in the sense of having the responsibility when the door closes."

"Student teaching [externship] is different in terms of responding to expectations and the stance of the cooperating teacher...[At that time] I look for knowledge about the nature of science, enthusiasm, and the vocabulary."

"Given what they come in with and with enough assistance we can offer, how far can they go?.....[the most valid indicator] is reflected in the qualitative judgement of the university supervisor on the narrative aspect of the form...the scale by itself is sterile".

"I expect mistakes, but not twice. I look for improvement or how they changed to become competent in these areas," pointing to the Final Clinical Evaluation Form.

"The setting is the variable. The externship placement is for demonstration of skills. I will always expect some students to say they did not have a desirable placement."

Faculty and administrators were elicited to identify the cognitive development phase (Berliner, 1988; Peterson, 1988) expected of teacher candidates upon graduation from the program. D.C. Berliner postulates that pedagogical reasoning develops throughout a teaching career in five phases: "novice," "advanced beginner," "competent," " proficient" and "expert." These phases of pedagogical reasoning development are qualitatively different (Carter, et. al., 1988).

Generally faculty and administrators view the development phase of pedagogical reasoning which most teacher candidates can attain in the final clinical experience from different

perspectives. Faculty feel the teacher education program allows most students to attain the developmental phase of "competent" in pedagogical reasoning/teaching skill whereas administrators think most teacher candidates will attain the phase of "advanced beginner." Faculty interpret the final clinical experience as primarily assessing the pedagogical reasoning developed within their teaching specializations as they work with the candidate during the last three years of the program. Some programs require clinical experiences in 2 school sites; other programs require clinical experiences in 3 or 4 school sites.

Administrators, however, view teacher candidates from a broader perspective of experienced teachers who develop professionally throughout their entire career. As one administrator said, "the program aim is to develop an entry level teacher, an advanced beginner....ready to enter the field...[They are] seen as a beginner," although individuals can attain a "competent" level.

The evidence presented in this chapter suggests that the program model is logically derived from a theoretical model. Much of the theoretical model is supported by research. It approves that both the theoretical model and program model is essential in developing valid indicators of program validity.

CHAPTER 3

DATA SUPPORTED RATIONALE FOR SELECTION OF INDICATORS

Four major sources have been consulted in the selection of relevant information for the indicator system for teacher education program quality. First, the faculty of the School of Education were interviewed to identify the dominant conceptions of teaching which informed the restructured programs as well as their views on valid indicators. Second, the analyses of the Entering Teacher Candidate Survey and the Graduating Teacher Candidate Survey which have been administered by the School of Education since 1984/1985 were considered. These instruments have provided information to characterize the preservice teachers that we serve and to understand relationships between teacher characteristics and the teacher education program. The Research about Teacher Education (RATE) project (Yarger, 1989) was consulted to identify indicators that will allow institutions to understand their program in the national context of teacher education. Finally, the teacher education literature on the knowledge base for teaching was consulted (eg., Shulman, 1987; Berliner, 1988). From these sources the following sources of relevant information have been identified for the proposed indicator system: demographics, college background, self-efficacy for teaching, reasons for teaching, teaching committment, conceptions of teaching, professional educational beliefs, multicultural sensitivity, National Teachers Examinations, academic major GPA, professional knowledge GPA, Final Student Clinical Evaluation, Beginning Teacher Assistance Program, Alumni Survey, Principal's Rating, and matriculation rates.

DEMOGRAPHICS

Currently, the data from the ETCS and GTCS suggest that VCU's teacher candidates reflect the characteristics of national samples as reported in the summaries of the RATE project (Zimpher, 1989; AACTE, 1988) and other college samples (Book, Byers, & Freeman, 1983). At the same time, some concerns arise out of this data. It has been found that preservice teachers are largely white and female. Further, the percentage of minorities in education is lower than the percentage of the general college and university population. Few teacher candidates grew up in urban areas. According to RATE III, only 15% of the students interviewed considered themselves fluent in a second language. Most attend colleges or universities within 100 miles of their homes. Not only do preservice teachers come from a homogeneous background, but the RATE data also suggest that they prefer to teach middle SES children in suburban or rural settings. Taken together, these findings raise concerns about cultural insularity, the interest and ability of the emerging teaching force to deal with the demographic and socio-economic profile of the public schools (Zimpher, 1989). Two needs emerge: 1. to recruit a more heterogeneous body of prospective teachers, and 2. to programatically increase awareness and interest in cultural diversity.

Second, with the introduction of many different types of teacher preparation programs across the country, including an extended teacher preparation program, and restrictive GPA requirements, it is important to document any accompanying demographic changes in the students who choose teaching as a career.

Therefore it is recommended that the following demographic data continue to be collected: age, sex, ethnic group, SES, SAT scores, high school background and activities, time management, and experience with children. These variables will allow individual institutions to continue to

compare themselves with national sample, will track progress toward attracting a more culturally diverse student body, and will allow a determination of whether restructured education programs are attracting a different type of student.

COLLEGE BACKGROUND

Many of the junior level students who are studying to be a teacher do not fit the typical profile of a college junior. The demographic characteristics of the college population are changing as are the demographics of the preservice teacher population. Secondly, in the State of Virginia alone, each college or university now can develop its own certification guidelines with the approval of the State Department of Education. Some institutions will have extended teacher preparation programs with a master's degree; some institutions will remain bachelor's degrees with as few as 18 credit hours in education. Given such a wide range of preparation, it is important to understand the college background of the teacher candidates.

Second, the conception of teaching that dominates the teacher education program is that of a "liberally educated person who is competent in pedagogical skills and oriented toward problem-solving and reflective inquiry in their teaching specialization" (Appendix A). Yet, national data indicate that 75% of elementary education majors do not have an academic major other than education, and almost the same amount did not have an academic minor (Zimpher, 1989). A description of the academic preparation of the teacher candidates gives an indication of the nature of their liberal education and an opportunity to compare this preparation with a national sample.

In sum, it seems important to identify students who transfer from community colleges, those who have an undergraduate degree when they enter the program, and those who earn an academic major in the Humanities and Sciences at the university.

SELF-EFFICACY FOR TEACHING ROLES

The faculty/admistrator interviews support the inclusion of self-efficacy as a general indicator of program quality (Appendix A). It has the advantage of being an affective indicator that is not directly taught in the teacher education programs and it "gets beyond technical ability." Further, the analysis of the ETCS and GTCS suggests that self-efficacy does increase during the course of the current four-year teacher preparation program. At the same time, a small percentage of entering students held high to complete confidence in their ability to perform certain teaching skills. As Weinstein (1988) observes, students who hold unrealistic expectations about their own success may devalue the need for professional preparation. While it may be important for beginning teachers to believe that they can perform the teaching roles that are expected of them, that confidence may need to be balanced with realistic expectations.

REASONS FOR BECOMING A TEACHER

The literature suggests that individuals choose teaching because they are altruistic and love children. While these values are important, they do raise concerns about the teachers' commitment to the intellectual growth of the students they serve. Similarly, the faculty interviews convey a sense of appropriate and inappropriate reasons for teaching. The less desirable reasons include those based on financial rewards, having "free" summers, and loving to work with children. The analysis of the ETCS indicates that current students primarily choose to teach because of the satisfaction and fulfillment expected from helping children to learn. It is important that all preservice teachers view the teaching of content as a central focus of their mission, otherwise they may not attend to instruction on content, ways to organize and deliver content to facilitate student learning, and ways to evaluate learning that will ultimately maximize it. Therefore, reasons for becoming a teacher are an indicator of program quality.

TEACHING COMMITMENT

Faculty and administers considered it important that teacher candidates maintain or increase their committment to teaching during the course of their preparation and seek a job upon graduation. Most interviewees considered it a problem if 20% or more decreased their committment to teaching (Appendix A). In addition, they felt that the length of service was a valid indicator only for about five years after graduation because of the number of intervening life variables that affect career progression (Appendix A). The analysis of the GTCS found that 89% of the teacher candidates hoped to find a teaching position immediately after graduation. Only 13% expect to teach for less than five years, 31% expect to teach for five to ten years, and 56% expect to teach for more than ten years (Appendix C). These figures are similar to those from the Michigan State sample (Book, Byers, & Freeman, 1983). While the committment to teaching currently is strong, there is some question as to whether the extensive preparation will increase the committment of teacher candidates or whether the options open to them with the academic major will encourage them to leave teaching early. A measure of teaching committment, then, appears to be a relevant indicator of program quality.

CONCEPTIONS OF TEACHING

Each of the faculty and administrators interviewed felt that teacher candidates' conceptions of teaching and education were valid indicators of program quality. In general, the values expected to be reflected in students' orientation to teaching are: satisfaction from working with students of diverse backgrounds; satisfaction from promoting high academic achievement and responsibility; concern about the intellectual, social, and emotional growth of pupils and their physical wellbeing. Finally, all of the interviewees felt that teacher candidates should first attribute student failure to areas that the teacher can influence such as her teaching methods.

A measure of student's conceptions of teaching will clarify their entering biases and provide data about the match with program expectations.

PROFESSIONAL EDUCATIONAL BELIEFS

The professional educational beliefs identified by Schumacher et al (1985) were supported by those interviewed as valid indicators of program quality (Appendix A). These beliefs were identified by faculty and public school personnel as crucial beliefs for teachers to hold. It is expected that graduating students should share these beliefs. As an affective measure of committment not directly taught, it is a relevant indicator of program quality.

MULTICULTURAL SENSITIVITY

As discussed earlier, the homogeniety of the preservice teacher population does not match the heterogeniety of the students they will teach. Concerns exist not only about attracting a more heterogeneous teaching corps, but also increasing awareness and interest in cultural diversity (Anderson, 1988). Faculty saw the need "especially in an urban university since it is the first time many students (teacher candidates) are in black schools" (Appendix A). It is to this second issue that the multicultural awareness scale is addressed. The scale will draw on items from other parts of the survey to indicate the extent to which teacher candidates are committed to teaching in urban settings, their beliefs about cultural issues, and their orientation to teaching culturally diverse populations.

NATIONAL TEACHER'S EXAMINATIONS

The faculty interviews support the use of the NTE and its subtests as an indicator of various aspects of program quality (Appendix A). While it was observed that no agreement exists about an appropriate knowledge base for teaching, the NTE general knowledge subtest was

viewed as an important indicator of the suitability of students general background for teaching. The NTE Specialty Examination is endorsed as a summative indicator of the teaching knowledge base. The NTE Examinations were valued primarily because they function as an independent indicator of program quality. Content validity and predictive validity were considered to be questionable.

GRADE POINT AVERAGE

The faculty interviews support the use of the GPA at admission to the graduate program as an indicator of program quality (Appendix A). The faculty generally expressed a desire to separate the GPA for professional courses and the GPA for academic courses. While the GPA was judged to have face validity, the evidence for predictive validity remains undetermined.

FINAL STUDENT CLINICAL EVALUATION

The Final Student Clinical Evaluation form was a unanimous choice as the most valid indicator of pedagogical reasoning/teaching skill. This indicator reflects the "professional judgment to assess the integration of knowledge in a particular content and adjusting this to meet the needs of children" (Appendix A). The faculty indicated that, with minor revisions, the clinical evaluation rating form currently in use would be appropriate. The scales measure the teacher candidate's competence in classroom management, planning, interactive skills, knowledge, evaluation, professional traits, and personal traits. Faculty generally expect students to reach a "competent" level of pedagogical reasoning (Berliner, 1988), ie., demonstrate personal decision-making and responsibility in teaching. However, the program intent is to "develop an entry level teacher, an advanced beginner...ready to enter the field" (Appendix A). Because some programs

provide a greater variety of clinical settings, it is possible for some students to attain the "competent" level of pedagogical reasoning.

BEGINNING TEACHER ASSISTANCE PROGRAM

The Beginning Teacher Assistance Program (BTAP) was initiated by the State of Virginia to assure that beginning teachers have the specified competencies for success in the classroom or the support necessary to develop those skills during the first two years of teaching (McNergney, 1985). While expressing concern about the reliability of the observations and the effect of the school setting on student performance, faculty generally viewed BTAP as a low inference indicator of teaching skill (Appendix A). Success rates as good or better than those of current students are expected.

ALUMNI SURVEY

The faculty and administrators who were interviewed desired information from alumni about employment patterns, the extent of the "culture shock" of the first year of teaching, and program critique in the fourth or fifth year of teaching (Appendix A). All interviewees expressed the need to revise the current alumni survey to gather this information.

PRINCIPAL RATING

The faculty interviewed expressed an interest in the prinicipal's view of the preparation of the students hired. Again, the need exists to use the present principal's rating scale to assess the skills and knowledge of beginning teachers as an indicator of program quality.

MATRICULATION RATES

While some students are expected to drop out of any program, if the percentage becomes unusually high, it indicates a need for more information. While the matriculation rate itself

provides little information, it suggests a need to gather information about the demographic characteristics of those who drop out, as well as reasons for doing so, to determine the extent to which program structure and quality is an issue.

CHAPTER 4

AN INDICATOR SYSTEM FOR TEACHER EDUCATION PROGRAM QUALITY AND IMPLICATIONS

Indicator systems can provide information about what happens in an educational program over time, how the program compares to other programs, and how the program compares to societal expectations. An indicator system consists of carefully designed and gathered statistics derived from a test, a survey, or a collection of information on important aspects of the program. The statistics describe some quantitative or qualitative aspect of the educational program (Kaagan & Coley, 1989). To be useful, an indicator system measures selected features of a program which are "enduring, easily understood, feasibly measured and generally accepted as valid and reliable statistics" (Richards, 1988, p. 496). Furthermore, in contrast to program evaluation of specific changes or desired outcomes, an indicator system is an open system with continuity over a period of time to be useful when an aspect of the program becomes a concern. Although indicator systems providing broad political intelligence about the health of a system have been applied to K-12 schools and other policy areas, similar activities for teacher education programs are not apparent. The proposed indicators are a beginning effort to design a system for a teacher education program quality in a southern, urban state university.

SELECTION OF INDICATORS OF PROGRAM QUALITY

Any selection of a particular set of indicators requires judgment if the indicator system is to present meaningful data. Several considerations influenced the selection of the indicators of teacher education program quality. First, the dominant conception of teaching was one of a "liberally educated person with proficiency in an academic major, i.e., a B.A., B.S. or its

equivalent in the fine arts" (faculty member) and a "teacher as a decision-maker, i.e., using both academic and professional knowledge to analyze classroom practice, to evaluate, and to plan tactics," (an administrator). Ratings on a written prompt confirmed that the dominant conception of teaching embedded in all teacher education programs is that a teacher is a liberally-educated person who is competent in pedagogical skills and oriented toward problem-solving and reflective inquiry in their teaching specialization.

Second, because each teaching specialization differs in its pedagogical orientation of the academic major, there are multiple pedagogical orientations of the academic major applied in instruction. "For example, secondary education takes a discipline orientation; early and middle school education are student centered as is special education; special education also has a public policy orientation; and both early education and special education have a parent orientation" (a professor). Ratings on a written prompt confirmed that four pedagogical orientations by instructional intent were common across teaching specializations: producing conceptual change in students, skill acquisition, social and emotional development of pupils, and cultural transmission.

Third, the theoretical and program model, both in the structure and delivery of the teacher education program (see Figure 2 in Chapter 2), identifies multiple intended program outcomes. The major program outcome is the application of pedagogical knowledge in a particular instructional situation. Faculty uniformly viewed the ultimate outcome of teacher education as the development of pedagogical reasoning. Interviewees stated "[It's the] application of knowledge in teaching" and "To get at pedagogical reasoning, [you] must have candidates give their rationale - I don't want decisions done mechanically." The most valid indicator of pedagogical reasoning (Berliner, 1988) and teaching skills is found in the final clinical experience and is expressed in the student teaching/externship final evaluation. The

essence of this indicator is professional judgement rather than a test score or criterion-based specific behaviors.

Fourth, the analysis of the qualitative interviews of faculty and administrators suggests that some measures are perceived as more valid in terms of program quality than other measures (see Appendix A). Other measures, however, may be less valid but have more evidence of reliability. For example, the National Teachers Professional Knowledge Examination is viewed as having evidence of reliability but limited evidence of predictive validity. The final clinical evaluation rating, in contrast, is valued for its high validity in the application of pedagogical knowledge and for the development of pedagogical reasoning but may have limited evidence of reliability because of its dependence on the selected clinical setting. An indicator system, however, allows for multiple measures.

Fifth, a pre-post analysis of a matched sample of 227 teacher candidates from 1984-1989 on the Entering and Graduating Teacher Candidate Surveys (see Chapter 3 and Appendix C) identified scales which demonstrated program impact. Program impact was demonstrated by pre-post changes in self-efficacy and by maintenance of a core of professional educational beliefs identified by the faculty in 1985 (Schumacher, Esham, & Bauer, 1985). Other values such as commitment to a teaching career are obtained for monitoring purposes.

Finally, the purpose of the indicator system influences the design and selection of measures. The proposed indicator system for program quality is designed for several functions. The system primarily describes the teacher education program and determines program effectiveness. By including context indicators (Oakes, 1989), the indicator system can provide evidence of dramatic policy changes and program shifts to identify areas for further investigation.

AN INDICATOR SYSTEM FOR TEACHER EDUCATION PROGRAM QUALITY

The selected indicators for program quality and the input, process, and outcome measures are presented in Figure 3: Indicator System for Teacher Education Program Quality. The indicators of program quality are:

1) a liberal education (Shulman, 1987; Anderson, 1989);

2) pedagogical knowledge (Shulman, 1987; Clark & Yinger, 1987; Wilson, Shulman & Richard, 1987; Teachers College Record, 1990; Reynolds, 1989; Woolfolk, 1989);

3) development of pedagogical reasoning (Shulman, 1987; Berliner, 1988; Peterson, 1988; Carter, et. al., 1988);

4) other selected indicators of self-efficacy, conception of teaching, professional beliefs, multicultural sensitivity, and teaching commitment.

The input measures for program quality are admission criteria for the teacher education program (2nd or 3rd year of college). These measures include a 2.5 GPA in general studies, the NTE General Knowledge Examination and the NTE Communication Skills Examination. The outcome measures for admission to the profession in all teaching specializations are: 1) a liberal education, 2) pedagogical knowledge as measured by the NTE Professional Knowledge and Specialty Area Examinations and the GPA for professional education courses, 3) the development of reasoning as measured by the Final Student Clinical Evaluation Rating (student teaching/externship) and the Virginia Beginning Teacher Assistance Program (BTAP) observational scores and 4) other valued outcomes as measured by the pre-post scales of the Entering Teacher Candidate Survey (ETCS) and the Graduating Teacher Candidate Survey (GTCS). Measures of practicing the profession include the Alumni Survey and the Principal's

Rating of the first year teacher. The indicator system also contains context variables which describe demographics, both by individuals and by program, and matriculation/retention rates of the different teaching specializations. Because the concept of teacher development underlies the program structure, measures of candidates are obtained from program admission through admission to the profession and the beginning practice of teaching. Appendix D describes each measure.

The indicator system, presented in Figure 3, employs multiple data collection methods. Some measures, i.e., ETCS and GTCS, allow for pre-post comparisons on selected scales. Some measures, i.e., Alumni Survey, Principal's Rating and the Final Clinical Evaluation, compliment other measures on selected variables. These five measures are program-developed instruments which have been used for 5 or more years. Some measures are nationally-developed standardized tests for which the program has historical trend data such as the NTE Examinations. One measure, the Virginia BTAP observational rating, is a state-developed standardized instrument for which the program has historical trend data. Of the three observational measures, the Final Clinical Evaluation Rating is a high-inference instrument based on the professional consensus of the evaluators; the BTAP instrument is a low-inference observation schedule administered by the state of Virginia; and the Principal's Rating scale is a high inference instrument. In summary, the instruments include standardized paper and pencil tests, self-report measures, and both high and low inference classroom observational ratings.

INSERT FIGURE 3
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FIGURE 3
INDICATOR SYSTEM FOR TEACHER EDUCATION PROGRAM QUALITY

Quality Indicators	Input Indicators	Process Indicators	Outcome Indicators	
	Admission to Teacher prep./60-90 hrs. of liberal education	Admission to Graduate Studies	Admission to the Profession	Practice of the Profession
Liberal Education	GPA 2.5/transcript analysis NTE General Knowledge Exam NTE Communication Skills Exam		Academic Major or Degree Awarded	
Pedogogical Knowledge			NTE Speciality Area Exam NTE Professional Knowledge Exam GPA Professional Education	
Pedagogical Reasoning			Final Student Clinical Evaluation Rating BTAP	
Self-efficacy	ETCS		GTCS	
Conception of Teaching	ETCS		GTCS	
Professional Beliefs	ETCS		GTCS	
Multicultural Sensitivity	ETCS		GTCS	
Teaching Commitment	ETCS		GTCS	Alumni Survey Principal's Rating
Program Critique			GTCS	Alumni Survey
Context Variables				
Demographics: Personal Program	Application x SAT or ACT; GRE or MAT		Graduation x	
Matriculation Rates	x		x	

Multiple methods are essential to gauge teacher education program quality. The multi-method approach, often called multiple operationalism and multi-trait or multi-method-matrix, is not an attempt to converge across methods on the "answer", i.e., a single estimate that is more accurate than would have occurred with only one imperfect measure. Instead, the multiple methods approach is used in a complementary purposes model (Mark & Shotland, 1987) which recognizes a number of conceptually overlapping variables. Each measure is used for different data collection tasks to address different program components (Judd, 1897; Hunter, 1987).

IMPLICATIONS

A number of issues relating to indicator systems - design, instrumentation, and the gathering, analysis and reporting of data - have emerged as indicator systems have been developed for public policy (Kaagen & Coley, 1989; Oakes, 1989; Murname, 1987). This study suggests four implications for the development and use of an indicator system for teacher education program quality: the need to identify both the conceptual and program model prior to indicator selection, delineation of the indicator system functions, selection of valid indicators and potential uses for teacher education institutions operating in a state policy arena.

Identification of the Conceptual and Program Model. Program leaders in teaching specializations tend to use the language valued in the specialization. A common program language related to the abstract connotations of the theoretical literature seems necessary. The literature provides the subtle meanings which inform frequently used programmatic language such as "the teacher as a decision-maker." What is the basis for teacher decision-making which a program values -- intuition, authority, beliefs, reasoning, or some other phenomenon? Both

of four purposes: to reveal program operations, to determine program success, to suggest areas of further study and to assign accountability. To determine program success, a system would need at least a minimum criterion for each outcome, if not an absolute standard, the use of pre-post measures and historical trend data. To suggest areas of further study, an indicator system would require multiple input and process indicators to isolate specific variables and determine their relationship to desired outcomes. Indicator systems which include context measures, however, cannot possibly provide all the complex and interactive data which researchers and decision-makers need to understand the relationships among a multitude of program characteristics and educational outcomes. Contextual information permits analysts to more fully capture the performance of a program, balance the effects of outcome indicators, i.e., "high stake" decisions linked to test scores, and enhance the policy relevance of the indicator system. These functions of an indicator system are not directly linked to institutional action. These functions gauge program quality but do not explain the causes of its quality (David, 1988). To isolate specific causes requires more focused studies on identified program variables. The proposed indicator system provides information about how well a program is doing and some contextual data in which to couch the results.

Indicator systems have frequently been viewed as a tool to hold individuals, both faculty and administrators, accountable for the educational results. When there are "direct consequences, tangible or intangible, attached to numbers, the burden on the system quality mushrooms" (Kaagan & Coley, 1989, p. 11). This is a substantially different use of an indicator system by faculty and administrators than for determining program direction, supporting it, and implementing it. Furthermore, teacher education programs are influenced by many factors not directly nor immediately amenable to change by administrators. To assign accountability is difficult with or without data.

Selection of Valid Indicators. In creating a system to be useful, judgement calls are necessary in indicator selection because some indicators have greater validity and present value than others. The theoretical and program model suggests that indicators can be comprehensive to describe four and five year teacher education programs encompassing diverse teaching specializations.

The proposed indicator system is focused on program quality. Validity of the indicator system depends as much on the evidence of measuring important outcomes as it does on the usual properties of test validity and reliability. The analysis of the qualitative interviews of faculty and administrators suggests that some measures are perceived as more valid in the terms of program quality than other measures. Other measures, however, may be less valid but have more evidence of reliability. The status of knowledge in teacher education, teaching, and teacher education program evaluation (Katz & Raths, 1985; Galluzzo, 1986) limits the use of an indicator system for accountability. At present, the proposed measures have primarily face validity. A few measures have content validity (Schumacher, Esham & Bauer, 1985). Other types of measurement validity are yet to be determined. However, the selection of important inputs and outcomes with selected context variables connotate program validity (House, 1980), an essential feature of program quality.

Of particular concern is the need for measurement balanced with parsimony and the inclusion or exclusion of context variables. Although faculty and administrators can identify "signs" of program health from their respective teaching specialization or position, the use of a broad-based but selective committee to design the system and select the indicators is beneficial. Obtaining consensus is not easy.

In addition, organizational capacities, norms, and other features effect the design of a useful indicator system. Considerations include 1) the utilization of mainframe and PC computers, 2)

the integration of data collection and analysis into institutional rhythms, 3) the analytic ability, however modest, of the organization, and 4) a sustained coordination of a team effort with continuous resource allocation and a long term commitment.

Implications for Teacher Education Institutions. Teacher education institutions need to monitor and assess the effectiveness of their programs for internal purposes. Faculties, as professionals, evaluate students as they progress in a teaching specialization. There is a need, however, for an entire program which encompasses diverse teaching specializations to be systematically scrutinized for program revision and internal resource allocation. Further, administrators need accurate information regarding program quality to inform university officials.

The proposed measures provide indicators of liberal education, pedagogical content knowledge, the development of pedagogical reasoning and teaching skills, and other valued outcomes. These indicators contrast to the present policy of many states: completion of a bachelor's degree in an academic discipline and the attainment of a minimum score on both the National Teachers Examinations and a state assessment of functional teacher behaviors. Although state agencies maintain records of higher education student demographic characteristics and matriculation rates, these are used in other higher education policy decisions. At present data utilized in the state policy arena is limited in determining the quality of teacher education programs and their graduates.

Given the higher education funding process which operates in most states, state department officials may need more comprehensive information to set budget priorities and inform state policy-makers. Indicator systems of program quality developed by teacher education institutions may provide useful data-based information to assist in state policy-making.

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APPENDIX A
ANALYSIS OF INTERVIEWS

DOMINANT CONCEPTIONS OF TEACHING WHICH INFORM THE RESTRUCTURED PROGRAM

Faculty and administrators agreed that the dominant conception of teaching which informed the restructured program was that of a "liberally educated person with proficiency in an academic major, i.e. a B.A., B.S. or its equivalent in the fine arts", as one professor expressed it. This meant an "increased academic preparation in the arts and sciences because of the importance of the knowledge base." A consistent theme expressed was "the teacher as a decision-maker, i.e. using both academic and professional knowledge to analyze classroom practice, to evaluate, and to plan new tactics" (an administrator).

For candidates planning to be certified in secondary education, the undergraduate major chosen would be the discipline most closely related to the school subject. For candidates planning to be certified in early and special education, the undergraduate major is not specified for each program because there is no evidence that one undergraduate major is superior in the development of teaching skills (See Restructured Teacher Education Plan, p. 5). As one professor said, "These programs encourage student free choice of a major, but the natural inclination is [to chose] psychology or sociology in the early and special education programs. For candidates planning to be certified in middle school education, the candidate is "recommended to major in a discipline most closely related to one of the middle school subjects--mathematics, science, social studies or English" (faculty member).

Some of the thinking behind the free choice of academic major in early and special education was a feminist perspective - that these "students will have more career options in the world of work - both in and outside of education." Although not all of the faculty agreed with

this perspective, there was ample articulation that a liberally educated person would have future flexibility in career choices, life styles and avocational interests. Other professors phrased the rationale as "graduates will have a better quality of life."

To verify qualitative data regarding the dominate conception of teaching embedded in the restructured program, all interviewees were given a written prompt with possible conceptions of teaching to rate on a scale of 1 to 5. These results are presented in Table 1.

TABLE 1

CONCEPTIONS OF TEACHING
(highest frequency possible is 75)

Tot. N=15	Fac. N=8	Adm. N=7	
46	24	22	a. teaching as a skill or competency
45	23	22	b. teaching as a clinical or problem-solving orientation
45	22	23	c. teaching as a well-rounded or liberally-educated person orientation
33	21	13	d. teaching in terms of holistic or humanistic orientation
45	21	24	e. teaching in terms of reflective and inquiry orientation

The results suggest that the dominate conception of teaching embedded in the restructured teacher education program is that a teacher is a liberally-educated person who is competent in pedagogical skills and oriented toward problem-solving and reflective inquiry in their teaching specialization.

Because each teaching specialization differs in its pedagogical orientation of the academic major, there are multiple underlying orientations inform the different restructured programs.

Examples of various conceptualizations of the pedagogical orientation of the academic major stated by interviewees are presented below.

> "For example, secondary education takes a discipline orientation; early and middle school education are student centered as is special education; special education also has a public policy orientation; and both early education and special education have a parent orientation".
>
> "The middle education program emphasizes both the knowledge base and the development of the student whereas special education's development of the student is not discipline-based."
>
> "Special education stresses behavioral skills; secondary education emphasizes the knowledge and related skills of the subject; and early and middle education emphasize the process of learning and the teacher as a facilitator in the child's construction of knowledge."
>
> "Teacher candidates, other than special education candidates have a greater understanding of the broader spectrum of education than just their own niche" (an administrator)."

Most persons view the pedagogical orientations of the special education program as more concerned with the sub-specializations whereas other teacher education programs do not deny their specializations, but place it in a broader educational perspective. However, the special education program is still in a planning phase.

Physical education encompasses both the public and private sector with its sport medicine, wellness, and physical activity focus. Each candidate can major in either physical education or health education with certification in the area not selected. If physical education is selected, the candidate can specialize in K-12, elementary or secondary education. Examples of interviewees perspectives are below.

> "Think of physical education as representing the body, the mind, and spirit."
>
> "We did a good job of training students as teachers, but we were not sure of the knowledge base...now, we are more assured that candidates have a knowledge base and we must be sure that they acquire teaching competency in a relatively short time."

Art, music and theatre education provide "discipline-based" programs which include history of the arts, aesthetics, criticism, and studio. An example of the perspective is below.

> "The program develops candidates' aesthetic sensibility, ability to evaluate works of arts (one's own and others') and the creation of individual works of art. Candidates must be creative and competent in their artistic field. All of these elements are applied to instruction."

To corroborate qualitative data regarding the multiple pedagogical orientations among teaching specializations, all interviewees were given a written prompt with possible pedagogical orientations by instructional intent to rate on a scale of 1 to 4. These results are presented Table 2.

TABLE 2
PEDAGOGICAL ORIENTATIONS BY INSTRUCTIONAL INTENT
(highest frequency possible is 60)

Tot. N=15	Fac. N=8	Adm. N=7	
29	19	10	a. teaching as cultural transmission
38	16	22	b. teaching as the training of skills
37	20	17	c. teaching as the fostering of natural development
46	27	19	d. teaching as producing conceptual change

The results suggest that there are, however, some common pedagogical orientations of the academic major to classroom instruction across different teaching specializations. The most important pedagogical orientation is that of producing conceptual change in students, closely followed by skill acquisition and natural development of pupils, i.e. social and emotional development. A fourth pedagogical orientation, rated less highly by interviewees but considered important, is provision of cultural transmission to pupils.

TEACHING KNOWLEDGE BASE AND POSSIBLE VALID SUMMATIVE INDICATORS

Perspective. There was a common assumption, as one professor said, "that it was better to integrate theory and practice and to have a continuing experience in academic areas in undergraduate and graduate levels, including consumer research competency, and a continuum of clinical experiences from an early (practicum) to a final experience (student teaching or externship)." Several faculty members stated that the summative indicators of the knowledge base should be imbedded in the application of the teaching knowledge base. Examples of this perspective are cited below.

> "[The indicator is the] application of knowledge in teaching".
>
> "It [teaching knowledge base] must be in the clinical setting."
>
> "[Candidates should] break subject matter into components of instruction - an integration of subject material which is related to pupils."
>
> "To get at pedagogical reasoning, [you] must have candidates give their rationale - I don't want decisions done mechanically."

This indicator is discussed below as pedagogical reasoning/teaching skill.

L.S. Shulman (1987) proposed categories for the teaching knowledge base. Shulman suggests, at a minimum, the categories essential for the teaching knowledge base include:

- content knowledge;

- general pedagogical knowledge, with special reference to those broad principles and strategies of classroom management and organization that appear to transcend subject matter;

-curriculum knowledge, with particular grasp of the materials and programs that serve as "tools of the trade" for teachers;

- pedagogical content knowledge, that special amalgam of content and pedagogy that is uniquely the province of teachers, their own special form of professional understanding;

- knowledge of learners and their characteristics;

- knowledge of educational contexts, ranging from the workings of the group or classroom, the governance and financing of school districts, to the character of communities and cultures; and

- knowledge of educational ends, purposes, and values , and their philosophical and historical grounds. (Shulman, 1987, p. 8)

Shulman elaborates at least four major sources for the teaching knowledge base: "(1) scholarship in content disciplines, (2) the materials and settings of the institutionalized educational process(for example, curricula, textbooks, school organizations and finance, and the structure of the teaching profession), (3) research on schooling, social organizations, human learning, teaching and development, and the other social and cultural phenomena that affect what teachings can do, and (4) the wisdom of practice itself" (Shulman, 1987, p. 8).

A teacher must understand the structures of subject matter, the principles of conceptual organization, and the methods of inquiry that assist in the selection of important ideas and skills in subject domain as they change over time. Shulman further suggests that "this view of the sources of content knowledge necessarily implies that the teacher must have not only depth of understanding with respect to the particular subjects taught, but also a broad liberal education that serves as a framework for old learning and as a facilitator for new understanding" (1987, p. 9).

Possible Valid Summative Indicators of the Teaching Knowledge Base. Faculty and administrators considered two indicators of the knowledge base as having substantial evidence of validity. Most interviewees felt that a valid indicator would be the NTE Specialty Examination, although the content validity and predictive validity were questionable. However, the NTE Specialty Examination would function as an independent indicator of program quality.

All administrators and some professors said the cumulative GPA was a valid indicator of academic knowledge. The GPA had face validity, but the evidence for predictive validity was

undetermined. Faculty views of the GPA indicator composition and interpretation varied regarding validity. Suggestions to increase the validity of the GPA as an indicator were to: include academic and professional courses because of the integration of both types of courses throughout the five year program (one professor); include only those courses relevant to the school subjects or grades (three faculty members); include only the academic GPA of the third, fourth and fifth years "because we don't determine the major or select the courses" (two professors). Other suggestions were, in order of priority, the NTE General Knowledge Examination, the Graduate Record Examination, Master degree comprehensive examination, and awards given by the academic department of the undergraduate major.

PEDAGOGICAL REASONING AND ACTION AND POSSIBLE VALID SUMMATIVE INDICATORS

Perspective. When asked what were valid summative indicators of teacher candidates' pedagogical reasoning/teaching skill, the uniform response of all faculty and most administrators was the School of Education final clinical evaluation form (presently called the Student Teaching Final Evaluation Form). As one professor stated, "Our own final [clinical] evaluation form is the best indicator because of consistent format with a scale and [professional judgement] anecdotal comments. The categories are tied to the literature." Other possible indicators were viewed as considerably less valid for assessing pedagogical reasoning/teaching skill.

Faculty consistently phrased their comments about the final clinical experience in developmental connotations. Examples are cited below.

> "Student teaching [externship] is an opportunity for feedback. It is not reality based in the sense of having the responsibility when the door closes."

> "Student teaching [externship] is different in terms of responding to expectations and the stance of the cooperating teacher...[At that time] I look for knowledge about the nature of science, enthusiasm, and the vocabulary."

"Given what they come in with and with enough assistance we can offer, how far can they go?.....[the most valid indicator] is reflected in the qualitative judgement of the university supervisor on the narrative aspect of the form...the scale by itself is sterile".

"I expect mistakes, but not twice. I look for improvement or how they changed to become competent in these areas," pointing to the final clinical evaluation form.

"The setting is the variable. The externship placement is for demonstration of skills. I will always expect some students to say they did not have a desirable placement."

L.S. Shulman proposed a model of pedagogical reasoning and action. "Given a text, educational purposes, and/or a set of ideas, pedagogical reasoning and action involves a cycle through the activities of comprehension, transformation, instruction, evaluation, and reflection" (Shulman, 1987, p. 14). Chart 1 presents Shulman's model of pedagogical reasoning and action.

CHART 1

A MODEL OF PEDAGOGICAL REASONING AND ACTION

Comprehension
Of purposes, subject matter structures, ideas within and outside the discipline

Transformation
Preparation: critical interpretation and analysis of texts, structuring and segmenting, development of a curricular repertoire, and clarification of purposes

Representation: use of a representational repertoire which includes analogies, metaphors, examples, demonstrations, explanations, and so forth

Selection: choice from among an instructional repertoire which includes modes of teaching, organizing, managing, and arranging

Adaptation and Tailoring to Student Characteristics: consideration of conceptions, preconceptions, misconceptions, and difficulties, language, culture, and motivations, social class, gender, age, ability, aptitude, interests, self concepts, and attention

Instruction
Management, presentations, interactions, group work, discipline, humor, questioning, and other aspects of active teaching, discovery or inquiry instruction, and the observable forms of classroom teaching

Evaluation
Checking for student understanding during interactive teaching

Testing student understanding at the end of lessons or units

Evaluating one's own performance, and adjusting for experiences

Reflection
Reviewing, reconstruction, reenacting and critically analyzing one's own and the class's performance, and grounding explanations in evidence

New Comprehensions
Of purposes, subject matter, students, teaching, and self

Consolidation of new understandings, and learnings from experience
(Shulman, 1987, p. 15)

Despite some reservations regarding the application and interpretation of the final clinical evaluation form, all faculty and administrators with one exception viewed this form as the most valid indicator of pedagogical reasoning/teaching skills. The validity of the final clinical evaluation form depends on having "clearly defined expectations" for candidates and judgment by "experts", said an administrator, referring to faculty. Faculty and administrators almost uniformly voiced the essence of this indicator as one of professional judgment to assess the "integration of knowledge in a particular content and adjusting this to meet the needs of children" (an administrator).

The one exception to this finding was a person who, in reviewing the final clinical evaluation form, said that the skills were not "sufficiently specific." To be valid the evaluation categories would "need criteria with specificity like BTAP has." The perspective voiced appears to view assessment of the final clinical experience as criterion-based rather than professional judgement-based.

Possible Valid Summative Indicators of Pedagogical Reasoning and Action.

Composition of Pedagogical Reasoning/Teaching Skill Indicator. Eleven of the interviewees said the most valid indicator of pedagogical reasoning was the first five scales of the final clinical evaluation form. These scales measure the teacher candidate competence in classroom management, planning, interactive skills, knowledge, and evaluation. All interviewees in further reflection felt that because of the interrelationship of professional traits (scale 6) and personal traits (scale 7) to the other five scales, all seven scales were equally important in assessment. The final clinical evaluation form provides for professional judgement statements for all seven scales and space for "additional comments".

Application of the Final Clinical Evaluation. Although the university supervisor is primarily responsible for the administration of the final clinical evaluation, the professional judgement employed involves other professionals at the setting. The cooperating teacher has more opportunity to observe and evaluate the progression of the teacher candidate in the classroom and school context. The university supervisor has more knowledge of the possible skill level attainment and progression across candidates and in a variety of settings beyond the school context. The principal who observes the candidates twice, provides in-depth knowledge of the school context and the school's teaching expectations. The subject specialist supervisor, who may provide informal assessment, reflects the pedagogical content and instructional expectations of the school division.

University supervisors discuss their assessment with the cooperating teacher and others where applicable and independently judge the level of teaching skill attained by completion of the final clinical experience based on evidence from the entire experience. Some university supervisors view this as a collaborative process with the cooperating teachers, i.e. "the university

supervisor and cooperating teacher critique and look at both the content and pedagogical reasoning employed in a specific lesson to a known group of students", said one faculty member. Table 3 below displays how faculty members would apply the form in some programs.

TABLE 3

PROFESSIONAL SOURCES OF EVIDENCE FOR CLINICAL EVALUATION

	Univ. Super.	Coop. Teach.	Princi-pal*	Subject Specialist	Student (Self)	Consensus of
Early Ed.	x	x	x			3
Middle Ed.	x	x	x		x	4
Second. Ed.	x			x**		2
Spec. Ed.	x	x				2
Found.	x	x	x			3
P.E.	x	x		x***		2

* viewed as providing "job wiseness" information
** informal feedback only
*** two written observations given to candidate

Interpretation of the Final Clinical Evaluation. Faculty and administrators were elicited to identify the cognitive development phase (Berliner, 1988) expected of teacher candidates upon graduation from the restructured program. A written prompt was provided with short descriptions of the cognitive development phases of teacher development. To avoid providing cues to the interviewees, the descriptions omitted years of experience generally associated with the cognitive phases suggested by D.C. Berliner. Table 4 below is the summary results of all 15 interviewees and includes the results of faculty and administrators.

TABLE 4

PEDAGOGICAL REASONING PHASE INTENDED
IN THE TEACHER EDUCATION PROGRAMS
(highest frequency possible is 15)

The phase of pedagogical reasoning (Berliner, 1988) and teaching skills expected of teacher candidate graduates upon completion of their program is:

Tot. N=15	Fac. N=8	Adm. N=7	
_____			a. novice - knows context free rules and conforms to these rules
5	1	4	b. advanced beginner - uses strategic knowledge as the contexts begins to guide action and verbal knowledge; still following rules
8	6	2	c. competent - personal decision-making and responsibility in personal decision-making processes
2	1	1	d. proficient - fast, fluid, and flexible but still analytical and deliberative decision-making
_____			e. expert - "arational" - intuitively grasps a situation and seems to sense in non-analytical, nondeliberative ways the appropriate responses; fluid performance which is qualitatively different in performance than novices and competent teachers; "knowledge-in-action", deliberative only when the atypical is noted.

Generally faculty and administrators view the final clinical evaluation from different perspectives. Faculty feel the restructured program allows most students to attain the developmental phase of "competent" in pedagogical reasoning/teaching skill whereas administrators think most teacher candidates will attain the phase of "advanced beginner." Faculty interpret the final clinical evaluation as primarily assessing the pedagogical reasoning developed within their teaching specializations as they work with the candidate during the last three years of the program. Some programs require clinical experiences in 2 school sites; other programs require clinical experiences in 3 or 4 sites.

Administrators, however, view the candidates from a broader perspective of experienced teachers who develop professionally throughout their entire career. As one administrator said, "the program aim is to develop an entry level teacher, an advanced beginner....ready to enter the field...[They are] seen as a beginner," although individuals can attain a "competent" level. Another administrator, however, expected most candidates to attain the "competent" level only because the extended program provides more time for students to receive professional feedback. Students will make more informed decisions of commitment to certification preparation in the graduate phase of the five year program.

Interviewees were asked, later in the interview, to take the pedagogical reasoning/teaching skill phase they had previously marked and interpret the five ratings of "excellence", "above average", "average", "below average", and "poor" in terms of teacher cognitive development. Because interviewees worked from different category systems (novice-advanced beginner; novice, advanced beginner, competent; or novice, advanced beginner, competent, and proficient), the interpretations were inconsistent. No interviewee, however, thought any candidate would attain in all seven categories only "excellent" and "above average" ratings. Thus, faculty thought candidates would not develop "evenly" in all phases of pedagogical reasoning, an indirect confirmation of the development perspective which pervades the restructured program. Some faculty suggested that the terms "excellent", "above average", "average", "below average" and "poor" should be defined on the form so that cooperating teachers and principals understand the reference is to development of an entry level teacher candidate.

Final Clinical Grade. The second most valid indicator suggested by both faculty and administrators was the final clinical grade. However, some faculty and administrators were

doubtful of the validity because other factors influenced grades and the limited discriminatory power of grades.

BTAP Scores. The third possible indicator of pedagogical reasoning/teaching skill mentioned was the BTAP scores. However, its validity for program quality was either seriously questioned or totally rejected by other faculty members. Those who thought the BTAP scores could be an indicator viewed the scores as only a gross measure for a cohort group, but not for an individual. Faculty expressed concerns about "unevenly applied" observations, "low inferences of reality", "difficulty with the validity and reliability of observers" and "reflection of the school [setting], not the VCU program".

Program Specific Indicators: Physical Education. In addition to the above possible indicators, physical education faculty viewed the present Physical Education Student Teaching Daily Evaluation form as valid indicators of the developmental processes used for the final clinical evaluation assessment. The Physical Education Criteria for Student Teaching Grade also increases the content validity of grades.

CAREER COMMITMENT/ ASPIRATIONS AND POSSIBLE SUMMATIVE INDICATORS

One of the assumptions made in the restructured program was that teacher candidates, especially women, who had an extended preparation period for entering the profession, were more likely to maintain a commitment to the profession during their early adulthood and perhaps their entire working lives. Participants in the restructuring process were aware of research suggesting that career commitment of entry level teachers decreased, especially between the third and fifth year of teaching. Aspects of career commitment and aspirations which could serve as valid indicators of program quality were in order of priority: confidence in teaching performance, teaching commitment, career selection reasons, and expected length of service. Long range career

aspirations such as becoming an administrator or a specialist, or assuming leadership roles in a school or professional organization were not considered valid indicators of program quality, but may suggest career choice awareness.

Confidence in Teaching Performance.

Perspective: Faculty and most administrators felt that confidence in performing selected teaching skills was a general indicator of program quality. Examples of the rationales stated are presented below.

> "[Self-confidence is a] good indicator of a commitment to education ...cause [it] gets beyond the technical ability."
>
> "[It is] an outgrowth of development of competency or acquired behaviors."
>
> "To perform implies confidence as opposed to capability."

Confidence level should not, however, be the only indicator of career commitment because, as one professor said, teacher candidates "tend to underestimate what [reality] is like." Although one administrator considered confidence level was not an indicator of program quality, others felt confidence was a valid indicator if the it could be attributed to the program.

Teaching Commitment.

Perspective: All interviewees felt an indicator of program quality was that teacher candidates maintained or increased their commitment to teaching and planned to seek a position upon graduation. The reasons varied as presented below.

> "[Candidates are] more knowledgeable now [after the clinical experiences.]"
>
> "[Candidates are more informed now,] especially in an urban university since it is the first time many students [teacher candidates] are in black schools."
>
> "But teaching is not the only thing they can do -- speaking, writing, and people skills are more than the average major. They can move into industry, recreation, museum work..."

All interviewees expected some students to change their major during the program or not continue the program into graduate work. Whereas most faculty would be concerned if 20% to 30% of the teacher candidates decreased their teaching commitment, most administrators would be concerned if 20% of the candidates decreased their career commitment. Two administrators would be concerned if 5 to 10% of the candidates chose not to enter teaching because of the earlier decision points in the program. The rationales for these views are presented below.

> "If more than 10% of the students do not enter the teaching profession, we have not helped them to deal with reality years earlier...should be fewer [who do not enter teaching] than in the four year teacher education program" (an administrator).
>
> "[It means] the university advisor/supervisor and the clinical supervisors were not picking up on cues" (a faculty member).

Besides self-report measures, other methods suggested to assess this indicator was the GPA in professional studies, observation, and transcript analysis.

Reasons for Career Choice.

Perspective: All faculty members and most administrators viewed candidates' reasons for career choice as an important indicator of program quality. Examples of appropriate reasons are stated below.

> "[To have an] impact on children."
>
> "Satisfaction from working with people and children."
>
> "Enjoyment of children in a teaching capacity."
>
> "Some view of professional teaching as more than baby sitting."
>
> "[The] "challenge of teaching."
>
> "[To stimulate student acquisition of knowledge."
>
> "Not love of subject matter alone, but the desire to share it with others...a different orientation than [that found] in business where knowledge is utilized for competitive purposes."

"Help young people learn and the vehicle is the content."

"A desire to enter a profession of educational colleagues."

Reasons considered inappropriate for teaching career choice were:

"need time for my family"

"free summers"

"loving and caring for children...but they find this [alone] doesn't help."

"I love those young kids, I can manage them, and I don't have to worry about content."

Expected Length of Service.

Perspective. Faculty were more ambivalent regarding projected time in teaching service as an indicator of program quality, but administrators felt expected length of service was a valid indicator. Administrator comments are presented below.

"[Candidates] made the decision along the way and [they] will beat the average."

"[After] three to five years, it is not just a career change but a life change."

Most interviewees thought a five year teaching commitment indicated program quality. Beyond five years was difficult to related to the professional program because women faced economic and family circumstances, i.e. "too many twists and turns in life," said one professor.

Part of the ambivalence by the faculty reflected an awareness of two types of candidates. The first career candidates are "too uninformed" about teaching or unfamiliar with the concept of serial careers. The "second career" candidates, however, "think they do know and have made the commitment." The "second career" candidates were described as persons from 30 to 45 years of age who can make more than a five year commitment because of "their place in the life span," as one professor expressed it.

Long Range Career Aspirations. Faculty and administrators generally thought long range career aspirations such as becoming an administrator, a specialist or entering other types of leadership roles was not a valid indicator of program quality. Factors other than the university program influenced long range career aspirations.

Some administrators and faculty, however, thought career aspirations suggested a general commitment and specifically that candidates have "thought it out" and are "aware of career choices." A more valid indicator would be longitudinal employment data of graduates from the four year program and the extended program for comparison purposes.

CONCEPTIONS OF TEACHING AND EDUCATION AND POSSIBLE SUMMATIVE INDICATORS

All interviewees felt that teacher candidates' conceptions of teaching and education were valid indicators of program quality. The interpretations of candidates' conceptions, however, varied by program. Conceptions of teaching and education included to sources of job satisfaction, general educational goals, teacher attributions for student failure, and educational beliefs. Administrators and faculty agreed that these items, with revision, on the present questionnaire should remain for student self-report.

Sources of Job Satisfaction. All interviewees agreed that teacher candidates should expect both "working with students from diverse backgrounds" and "promoting high academic achievement and responsibility" to be sources of job satisfaction. Interviewees phrased sources of job satisfaction:

"to enjoy kids - to turn them on."

"to recognize it is not done in 3 months."

"helping and seeing individuals grow."

"especially important with multicultural education and mainstreaming."

"definitely academic responsibility."

Two programs vary in their interpretations. The Special Education program emphasizes emotional and social growth as more important than academic growth. The Physical Education program would add responsibility for physical fitness in addition to academic achievement.

General Educational Goals. All interviewees agreed that teacher candidates should have some notions about the role of schools in our society, i.e. broad goals of education. However, the interpretation of the relative importance of promoting intellectual growth, emotional growth, and social growth among pupils might vary slightly by program. More interesting perhaps is faculty perceptions of the relative importance of these three educational goals as reflected in programs other than the program they specialized in. Some faculty members appear to voice stereotype descriptions of teaching specializations. Reported here is the perceptions of the persons most closely associated with the program.

All interviewees viewed all three areas of pupil growth, i.e. intellectual, emotional and social, as equally important, especially in the "child-centered" programs. They assumed such goals implied that appropriate behaviors accompanied pupil growth. Although some faculty felt secondary education would view intellectual growth as most important for students, an informed professor said "secondary education claims a content-orientation but it should be both -- teaching people to think through a discipline." Another person said, "for the lower one-third of the student population, they can't achieve academically unless you attend to the emotional and social issues." The only variations among the importance of these educational goals was the Special Education program where emotional and social growth of pupils were valued more and the Physical Education program would add a fourth educational goal, that of physical activity.

Attributions of Student Failure. All interviewees felt that a valid indicator of program quality would be that teacher candidates attribute student failure to areas that the teacher can influence such as teaching methods rather than blaming failure on student characteristics (ethnicity, or social-economic status) or lack of motivation. However, this perspective was qualified by statements such as below.

> "Although the teacher, student and environment all are simultaneously interacting to produce learning, the [choice of teaching methods] is important to identify remediation."
>
> "Its the obligation to provide learning to all students."
>
> "Teachers should teach all children to achieve their highest level regardless of race."
>
> [Candidates should feet that] "I have the responsibility to take each child where he is and help...some groups are harder to teach."
>
> "Its the interaction of all -- characteristics, motivation, and teaching -- but first look at what the teacher is doing."
>
> "[Applies only] to the extent that they perceive they can have an effect on learning - teachers are not there to solve society's problems."

Professional Educational Beliefs. Selected educational beliefs were viewed as an indicator of program quality by all interviewees. In a 1984 study, samples of faculty and of school personnel agreed on 10 professional educational beliefs as crucial for teacher candidates. Each person was given a written prompt which listed these 10 belief statements and asked if these beliefs still indicated program quality. All interviewees agreed that teacher candidates, at a minimum, should hold these beliefs. Minor wording revisions were suggested for two belief statements.

POSSIBLE PROCESS INDICATORS OF PROGRAM QUALITY

Attributions of Students Counseled Regarding Choice of Education Major.

Perspective. All interviewees said the first student attribute which alerted a possible at-risk teacher candidate was evidence of inability to complete the "knowledge hurdles." Students who

"had the minimal or barely minimal GPA and were struggling to succeed should at least be confronted." However, two professors noted that academic knowledge alone did not directly predict to success in the professional educational program because students had completed only liberal arts courses prior to application.

Other attributes which alerted faculty and administrators to question students' career choice were patterns of specific personal characteristics. These are described below.

> An early pattern of irresponsibility with university expectations, i.e. taking "shortcuts, late to class, missing class, and avoiding financial obligations."
>
> "Extreme" difficulty in interpersonal relations, i.e., "not getting along with others in working relationships", "overwhelmed with interaction with children."
> "Unable to overcome a handicapping condition in an instructional situation."
>
> "Low communication skills" or not "speaking properly."
>
> "Lack of adoptability" or " a rigid student in approach to the world - can't even consider other points of view; unwilling to consider alternative teaching methods."
>
> Possible emotional instability described as "irrational crying", "flighty" in class and bizarre ("weird" or "strange") behavior observed over time.
>
> "Lack of self-direction."

Program specific inappropriate attitudes and behaviors also alerted faculty to question a student's career choice. For example, being primarily concerned with anticipated income if he/she is in a field in which entry level positions in the private sector are compensated two or three times more than that found in education (public or private). Faculty members in the Physical Education program would also question a student's career selection if the person was a "motor moron", i.e. extreme overweight, lacking physical and motor capabilities or living an inactive life style because to some extent physical education teachers "provide a real role model."

Admission Indicators of Inappropriate Career Choice. Two indicators of an at-risk candidate were suggested which could be assessed in the admission process. The most valid indicator was the

lack of a 2.5 grade point average in general studies. The GPA of 2.5 must be distributed among the disciplines as specified by the academic major chosen by the candidate. Furthermore, transfer students would need a transcript analysis in addition to the GPA.

The NTE General Knowledge score was viewed as the second most valid indicator. The NTE scores of candidates are not available at the time of admission. Other interviewees questioned the validity of the NTE because there is "no agreement on what the knowledge base is or should be." As mentioned previously, other administrators thought the NTE was a valid indicator because the examination was an independent "check" on the program. Although not mentioned specifically, it was assumed that the NTE Communication Skills was considered a valid indicator.

Indicators for personal attributes and behaviors would be obtained in the interview required for admission to teacher education and through observation of the candidate over time. Because of the intense advising process and the activity courses required of all physical education majors in their freshman and sophomore year, personal characteristics could be assessed through staff consensus by the formal application in the junior year.

First Clinical Experience Indicator (Practicum). Most faculty and administrators felt the first clinical experience was useful information but could not serve as a valid indicator. This position reflected the developmental nature of the restructured program. The first clinical experience could identify only the most obvious at-risk students in an instructional situation, i.e., "attitudes", "ability to work with young people." Although the clinical supervisor is involved in student assessment, there is no formal evaluation rating scale. Furthermore, the teacher candidate has a minimum of professional education courses and university supervision is not as rigorous as in

the final clinical experience (student teaching/externship). However, the practicum grade is part of the total professional GPA.

Development of Pedagogical Reasoning and Knowledge Application.

Perspective. A variety of activities were suggested to assess the development of pedagogical reasoning and knowledge application within the university setting. Possible activities were simulations such as lesson plans and instructional units, student presentations, analytical case studies, student-developed instructional materials, asking cognitive questions of students, examinations which present hypothetical situations or application essays, and continued clinical observation. Microteaching could provide useful information if the student chose a classical discipline major such as a foreign language, mathematics, or a science. The perspective voiced is in agreement with "Shulman's thesis....knowledge will show up because you have to have a good understanding of the discipline to do it." However, a key administrator said that these activities were not used as discrete indicators but viewed as "preparation for" and continuing "commitment to" entering the profession.

Final Clinical Experience Indicator (student teaching/externship). All interviewees felt the final clinical experience was a valid indicator of the "potential" to be a beginning teacher. The final clinical experience did not produce a polished teacher but provided the student with opportunities to demonstrate "capability of changing, of acquiring skills." In addition to the final clinical evaluation, the comprehensive examination for the master degree in the five year program could also serve as an indicator.

Student Perceptions of Quality of Clinical Role Models. Although interviewees considered student perceptions of the quality of clinical role models to be relevant and potentially useful, they differed in terms of whether student perceptions were a valid indicator of program quality. Most

interviewees felt student perceptions of role models were generally not valid because "we don't control the selection process" and "we take what we can get." Other rationales stated were:

> "[Students have] an immature view."
>
> "Students often describe a 'good' cooperating teacher as one who is supportive but not necessarily a role model."
>
> "Teacher candidates can learn as much from a less skilled cooperating teacher as from a skilled cooperating teacher."
>
> "The variability -- we must look at the criteria for teacher selection."

The final selection of the school and the cooperation teacher is determined by the school division.

However, two key administrators felt student perception of the quality of the clinical role models was a valid indicator of program quality. The perspective voiced was "yes -- more and more that is going to be the case," referring to the increase in the clinical role of the cooperating teacher as both a supervisor and a mentor.

POSSIBLE INDICATORS OF NEED FOR PROGRAM REVISION

Perspective. Multiple indicators were suggested to determine the need for major program revision. Administrators, more than faculty, easily articulated signals which could alert the School of Education.

Possible Valid Indicators. Below are listed by frequency the indicators mentioned.

Number	Indicator
3	"could not perform in the final clinical experience because presently few make less than a B."
3	"performance of the candidate on the job"; "supervisors' feedback within the first three years after the candidate has graduated."
3	"[alumni] perceptions of the program after three years"; "if 80% [of the alumni] felt not prepared."

3	the percent of candidates hired "drastically declined after four or five years of the new program"; "if [graduates] quit after one year of teaching"; "if 20% not enter teaching the first year."
1	"over all G.P.A. [academic and professional courses] dipped below 2.8."
1	"NTE Professional Knowledge and Specialty scores dipped below the high 80's."
1	"BTAP success rate dropped"

INDICATORS OF PROGRAM QUALITY REGARDING ALUMNI

Perspective. All interviewees felt the alumni could provide valid, useful and insightful information about the restructured program. Both general and specific information would be useful. Administrators primarily desired data for summative evaluation while faculty primarily sought data for formative evaluation. The themes voiced were those of identifying employment patterns, the extent of the beginning teaching "cultural shock" and program critique.

General Information Sought. The general information desired from the alumni is listed below in order of frequency mentioned.

Number	Information Desired
6	"comfort index" or "successes" and "difficulties:
	"reasonable competence and confidence"
	"if match not there between training and the culture of the school, then there is a mismatch of training to practice."
	"take the competency list and ask how important and how much used by the alumni"
5	"employment record"
	"in a desirable school system"
1	"yes, we need that data, but does it reflect the program or the market?"

Specific Information Sought. Listed below in order of frequency is specific information needed from the graduates.

Number	Information Sought
6	methods courses: "value"; "extent"; "too many?"; "additional skills needed"
4	"in professional associations"; "what books or journals they read"
3	"if the liberal arts major helped them"
2	"clinical experiences - "valuable?"; "preparedness?"
2	"if recommend VCU program to others"
1	"pride in teaching"
1	"ability to improve their performance over years - get them to describe their improvements in detail"
1	"[if plan or are] continuing their education with us at VCU"
1	"if assumed decision-making roles in school-wide committees"

When to Survey Alumni. Interviewees differed on when to survey the alumni, depending on whether they primarily desired formative or summative data. Whereas all faculty said the first year graduates should be surveyed, administrators were more concerned about the usefulness of the information from entry level teachers. As one person said, "if you survey the first year, you only get the short comings [reflecting cultural shock]" and "my first choice would be to survey the fifth year." Faculty and administrative consensus was to survey the graduates the first year, the third or fourth year "to see if they leave at this point", the fifth year, and then every five years. One administrator strongly recommended the alumni be surveyed the 8th to 10th year period because "teachers make career decisions and need intervention to re-charge them."

ENTERING AND GRADUATING TEACHER CANDIDATE SURVEY: PROGRAM SPECIFIC INFORMATION

Each faculty member could state three to five objectives which were unique to the particular program in which they primarily taught. All faculty members agreed to provide five questions which only the program majors would answer on the revised Graduating Teacher Candidate Survey.

All interviewees felt that although it would be best to survey the entering and graduating teacher candidates each year, surveying one cycle every five years or three cycles of graduating candidates every 10 years would be sufficient. One person asked, "why not annually....need 3 figures to get a trend."

Faculty stated that analyzing the data from the first cycle of candidates was a "must" because it would serve as an early indicator of program quality. Students should also respond to questions regarding the length of the program, the expense of the program, and the value of the academic major.

OTHER

Some faculty suggested other information that would be insightful regarding the restructured program. Comparisons of the responses of three groups of teacher candidates, i.e. the 18 to 22 year old students who took all their degree work at VCU, the transfer students (typically the same age cohort), and the non-traditional student, i.e. generally the second career woman in her 30's. The non-traditional student, because of the university's urban mission, is presently the majority of the students in many of the teacher education programs.

Some faculty suggested surveying the faculty regarding what "worked" and did not "work" in the restructured program or a faculty satisfaction with the program.

Administrators made two suggestions: "compare reported performance over time" and "build in use of the data." One administrator urged "hurry - there is a terrific need...its a rich resource for faculty planning and decision-making...needed by others and for the literature."

APPENDIX B
INTERVIEW GUIDE AND WRITTEN PROMPTS

Name:_____

Program/Division_____

INTRODUCTION

The DaBTEE project, funded by the Commonwealth Center, is to identify valid indicators of program quality which are common to all restructured programs: early childhood, middle school education, secondary education, special education and physical education. We are also analyzing the five year data bank of the VCU ENTERING AND GRADUATING TEACHER CANDIDATE SURVEYS to see which scales have significant pre-post differences. We ultimately plan to design a comprehensive data base with valid indicators of program quality for internal use and external review groups.

I am interviewing selected informed individuals who participated in the restructuring process -- faculty in each program and administrators on the Steering Committee. I am interested in your perceptions about the underlying conceptions of teaching and teacher development which informed the entire process and which indicators of program quality do you consider valid for all programs. Toward the end, I'd like you to talk about indicators which are relevant just to your particular program. If you don't mind, I'd like to take some brief notes as we talk. There will be no identification by person in the data analysis.

TOPIC - TEACHER DEVELOPMENT

Usually when a faculty goes through a long process of program planning, they have in mind the level of competence they expect their graduates to have. A number of researchers have looked at teacher development since the 1960's focusing on different aspects such as a) job skills, knowledge and behaviors, b) attitudes, expectations and concerns, and c) job events such as changes in the job, breaks in service, involvement in professional responsibilities, entry into teaching and retirement, honors and recognition. Some research results identified phases or stages for example:

by skill development such as
a survival stage (1st yr.), an adjustment stage (2 - 4 yrs.) and a mature stage (5th yr. ff) [Burden, 1979, 1980a, 1980b].

by commitment to education such as
a becoming stage with ambivalent commitment, a growing stage with a minimum level of commitment between the teacher and the school, a maturing stage with a strong commitment to education where they reexamine concepts about education and themselves, and a fully functioning professional stage with a definite commitment to the educational profession where they are trying to realize their potential as teachers and professionals by constantly testing and restructuring their concepts and beliefs [Gregorc, 1973].

However, some studies suggest even more refined stages such as preeducation student, education major student, initial teacher (1st yr.), developing teacher (2 - 3 yrs), practicing teacher (3 - 8 yrs), and experienced teacher [Yarger & Mertens, 1980].

[Prompt: Interview Prompt # 1]

We decided to use the most recent research, Berliner's (1988), which addresses the cognitive aspects of teacher development. Using Berliner's phases, which phase or phases of teacher development, do you think the restructured program expects of its graduates?

_____ a. novice - knows context free rules and conforms to these rules

_____ b. advanced beginner - uses strategic knowledge as the contexts begins to guide action and verbal knowledge; still following rules

_____ c. competent - personal decision-making and responsibility in curriculum and instruction, analytical in decision-making processes

_____ d. proficient - fast, fluid, and flexible but still analytical and deliberative decision making

_____ e. expert - "arational" - intuitively grasps a situation and seems to sense in non analytical, nondeliberative ways the appropriate responses; fluid performance which is qualitatively different in performance than novices and competent teachers; "knowledge-in-action", deliberative only when the atypical is noted

Would you please check those phases you think the restructured program expects of its graduates.

TOPIC - CONCEPTIONS OF TEACHING

Usually when a faculty restructures a program, they have in mind certain orientations or conceptions of teaching.

What became the dominant orientation to teaching which informs the restructured program?

One:_____

Many orientations:_____

[Prompt: Interview Prompts # 2, 3]
Prompt # 2 - Orientation to Teaching

Typical ways of describing a program's conceptualization of teaching are:

_____ a. teaching as a skill or competency

_____ b. teaching as a clinical or problem-solving orientation

_____ c. teaching as a well-rounded or liberally-educated person orientation

_____ d. teaching in terms of holistic or humanistic orientation

_____ e. teaching in terms of reflective and inquiry orientation

Would you rate these from most important (1) to least important (5) as underlying the restructured program.

Prompt # 3 - Orientation by Instructional Intent

Another way to describe the underlying orientation of a teacher education program is by curriculum and instructional intent. Typical descriptions are:

_____ a. teaching as cultural transmission

_____ b. teaching as the training of skills

_____ c. teaching as the fostering of natural development

_____ d. teaching as producing conceptual change

Would you rate these from most important (1) to least important (4) as underlying the restructured programs.

TOPIC 3 - INDICATORS OF PROGRAM QUALITY

We have extensive data in the five year VCU Data Bank on our graduates. The Entering survey contains 200 items and the Graduating survey contains 156 items. The following scales, which can be identified by major, are on both questionnaires: confidence in teaching skills, career plans/aspirations, orientations to teaching and education, and an educational beliefs inventory. Other items principally provide demographic information or a critique of the teacher education program.

We will be revising both surveys, but I need to identify those scales which are valid for the restructured program from the faculty's viewpoint.

KNOWLEDGE

For example, in the restructured program, what would you consider valid indicators that our graduates achieved the expected level of knowledge of the academic discipline(s) most related to the school level and school subject?

_____

_____

_____

Probe # 3

Would you chose, for example G.P.A._____. Which G.P.A. - the academic or the professional G.P.A.? or both_____?

What about the N.T.E. score - would that be a valid indicator of knowledge?

_____Yes _____No

Can you think of any others?_____

Probe # 4 - Knowledge Application within University

Are there others which might indicate the application of knowledge within the university setting such as:

_____ microteaching?
_____ simulations, e.g. lesson plans, plan for units of instruction
_____ student presentations
_____ analytical case studies
_____ development of instructional materials
_____ others_____

Probe # 5 - Gross Indicators or Pedagogical Reasoning?

Are these products gross indicators or indicators of pedagogical reasoning? How would you get at pedagogical reasoning?

_____

_____

TEACHING SKILLS

What would be a valid indicator that our graduates achieved the expected level of teaching skills?

Probe # 6 - Others?

What about the _____student teaching grade? _____externship grade? _____BTAP?

Probe # 7 - Gross Indicators or Pedagogical Reasoning?

Are these gross indicators or pedagogical reasoning applied in a particular setting? How would you get at pedagogical reasoning?

CONFIDENCE LEVEL IN TEACHING SKILLS

What if our graduates increased in their confidence in performing selected teaching skills, would this serve as an indicator? Why?

CAREER PLANS/ ASPIRATIONS

Let us talk about career plans and aspirations as a possible indicator of program quality. Do you think that there some career plans and aspirations which are more appropriate than others for our graduates? If so, which ones?

Probe # 8 - Commitment to Teaching/Position

Would an indicator be that our teacher candidates maintained or increased their initial commitment to teaching during the program and planned immediately to seek a teaching position? Why?

Probe # 9 - Length of Planned Service
What about how long they plan to work as a teacher as an indicator of program quality?

Probe # 10 - Length or Reason Given
Is it the length of time they plan to work or the reason graduates give that they have made a commitment to teaching?

Probe # 11 - Long Range Career Goals
What about long range career goals either in teaching or another type of position in education such as administrator, a specialist or leadership roles in a school or professional organizations as an indicator?

CONCEPTIONS OF TEACHING AND EDUCATION
Let us shift our conversation and think about teacher candidates' conceptions of what teaching and education is all about as possible indicators of program quality.

Probe # 12 - Reasons for Career Choice
Students choose teaching as a career for numerous reasons. Are there some reasons for choosing teaching as a career which you consider more valid than others as evidence of commitment to the profession? Can you give me some examples.

Is it important to collect data on this topic?
_____ Yes _____ No

Probe # 13 - Sources of Job Satisfaction
What about sources of job satisfaction such as "working with students from diverse backgrounds" or "promoting high academic achievement and responsibility"? Would you consider these appropriate sources of job satisfaction for our graduates? Why?

Probe # 14 - Selection of Educational Goals
One of the expectations of our graduates is to have some notions about the role of schools in our society or what might be called broad goals of education. Would an indicator of program quality be that our candidates believe that the primary goal of education is to promote intellectual growth among their pupils more than emotional and social growth? Could you explain?

_____

_____

Probe # 15 - Attributions of Student Failure
What about teacher attributions of student failure? Would a valid indicator be that teacher candidates attribute student failure to areas that the teacher can influence such as teaching methods rather than blaming failure on student characteristics or lack of motivation? Why?

_____

_____

EDUCATIONAL BELIEFS
Most teacher education programs try to instill in their graduates certain values. In our objective setting study five years ago, we found there were 10 educational beliefs which all programs and our sample of school personnel considered crucial. Are there certain crucial educational values or beliefs which you feel our graduates in all programs should have? Can you state for me the three most important ones.

_____

_____

_____

[Prompt: Interview Prompt # 4]

Probe # 16 - Crucial Educational Beliefs
Here is the list of 10 educational beliefs identified in our previous study. Do you still agree that graduates, at a minimum, should hold these beliefs?

_____ Yes _____ No

PROCESS INDICATORS

Let us shift our conversation again to some other types of indicators, especially process indicators of program quality.

Can you describe for me the type of student you counsel out of your program - in other words, strongly suggest that they should not seriously consider teaching as a career at this point in their life?

_____

_____

_____

Probe # 17 - Early Indicators

Are there certain early indicators that alert you that a student may not be choosing an appropriate career or profession? What are they?

_____

_____

_____

What about the reasons for choosing an education major - i.e., easy major, a significant figure chose education for them as a major?

_____

Probe # 18 - Early Indicators

Would these be early indicators

_____ G.P.A. to be admitted to teacher education?

_____ the entering screening tests?

Probe # 19 - Indicators before Student Teaching

Within the professional sequence before student teaching, are there indicators that alert you about a student's inappropriate career choice? If so, what are they?

_____

_____

Probe # 20 - Early Practicum/ Field Experiences Indicator

Does the early practicum/ field experiences serve as an indicator prior to the intensive student teaching/ externship experience? How?

_____

_____

Probe # 21 - Intensive Student Teaching/ Externship Indicator
What expectations in terms of teacher development do you have for the intensive student teaching/ externship experience? How can we get data on this aspect of teacher development?

_____

_____

Probe # 22 - Student Perceptions of Quality
Would an valid indicator be student perceptions of the quality of the cooperating teacher? or the potential role models in the selected school?
Explain.

_____

_____

Probe # 23 - Need to Revise Program
If the restructured program does not develop the kind of candidate you envision, what indicators would alert you that we need to revise the program?

_____

_____

ALUMNI INDICATOR
One of the indicators of program quality we have not talked about yet is that of the perceptions and experiences of our alumni. Do you think there are some indicators of program quality which our alumni could provide information about?

_____Yes _____No

Probe # 24 - Alumni Information
For example, what type of information would indicate program quality?

_____

_____

When do you think, assuming there is sufficient interest and funds, we should survey our alumni?

_____ First year?_____ Second year?_____ Third year? _____ Fifth Year?

INDICATORS OF PROGRAM QUALITY BY SPECIFIC PROGRAM (Not for School administrators or foundations faculty)

So far, we have talked in terms of the general indicators of program quality for all restructured teacher education programs, i.e. across specializations. Let us think about the particular program you are involved in now.

I assume that there are certain indicators of program quality that are distinctive to the _____ program. If so, can you name the five most important indicators which are valid for you program?

_____

_____

_____

_____

_____

It is possible that we could insert five questions for only program specific indicators which only your majors would complete.

Would you be willing to work with your program professors and give us those five questions for your program?

_____ Yes _____ No

DATA COLLECTION PLANS

Our present plans are to collect entering data with the revised questionnaire in fall of 1990 (next year) and to collect graduating teacher candidate data in Spring, 1992 for the four year Physical Education program and in Spring, 1993 for the five year teacher education and special education programs. This will be when the first time that an entire class has completed the restructured program.

My question is about when do you want that data analyzed to assist in program decisions. If we went to sampling, would once every five years be sufficient?

_____ Yes _____ No

Or, if we went on a ten year cycle of sampling, would once, twice or three times within ten years be sufficient?

_____ Once _____ Twice _____ Three times

OTHER

Is there anything else you would like to add as we develop the design for a teacher education data base system?

Cognitive Aspects of Teacher Development

Interview Prompt # 1

Name_____

Program/Division_____

We decided to use the most recent research, Berliner's (1988), which addresses the cognitive aspects of teacher development. Using Berliner's phases, which phase or phases of teacher development, do you think the restructured program expects of its graduates?

_____ a. novice - knows context free rules and conforms to these rules

_____ b. advanced beginner - uses strategic knowledge as the contexts begins to guide action and verbal knowledge; still following rules

_____ c. competent - personal decision-making and responsibility in curriculum and instruction, analytical in decision-making processes

_____ d. proficient - fast, fluid, and flexible but still analytical and deliberative decision-making

_____ e. expert - "arational" - intuitively grasps a situation and seems to sense in non-analytical, nondeliberative ways the appropriate responses; fluid performance which is qualitatively different in performance than novices and competent teachers; "knowledge-in-action", deliberative only when the atypical is noted

Would you please check those phases you think the restructured program expects of its graduates.

Conceptions of Teaching

Interview Prompt # 2, 3

Name_____

Usually when a faculty restructures a program, they have in mind certain orientations or conceptions of teaching.

Prompt # 2: Orientation to Teaching

Typical ways of describing a program's conceptualization of teaching are:

_____ a. teaching as a skill or competency

_____ b. teaching as a clinical or problem-solving orientation

_____ c. teaching as a well-rounded or liberally-educated person orientation

_____ d. teaching in terms of holistic or humanistic orientation

_____ e. teaching in terms of reflective and inquiry orientation

Would you rate these from most important (1) to least important (5) as underlying the restructured program.

Prompt # 3: Orientation by Instructional Intent

Another way to describe the underlying orientation of a teacher education program is by curriculum and instructional intent. Typical descriptions are:

_____ a. teaching as cultural transmission

_____ b. teaching as the training of skills

_____ c. teaching as the fostering of natural development

_____ d. teaching as producing conceptual change

Would you rate these from most important (1) to least important (4) as underlying the restructured programs.

Collaborative General Educational Beliefs Objectives*

Interview Prompt # 4

Name:_____

This is the list of the 10 crucial educational beliefs identified in our previous study. Do you still agree that graduates, at a minimum, should have these beliefs?

Coded as:
*** - 70% or more of both university and school educators rated as crucial
** - 60% or more of both university and school educators rated as crucial
* - 50% or more of both university and school educators rated as crucial

*** 1. To be a good teacher, one must be an enthusiastic, life-long learner.

*** 2. To be a good teacher, one must continually test and refine the assumptions and beliefs that guide his/her approach to teaching.

** 3. The development and delivery of a lesson plan should always be guided by a clear statement of what students expect to learn.

** 4. Teachers should establish and enforce clear cut rules for acceptable student behavior.

* 5. All school-aged youngsters are capable of learning to accept responsibility for their own actions.

* 6. Risk taking and making mistakes are essential components of social, emotional and intellectual development.

* 7. Educational equity should be defined in terms of equal opportunities to learn rather than equal educational achievements.

* 8. Learning that is motivated by intrinsic rewards (e.g., needs and interests) is superior to that which is motivated by extrinsic rewards (e.g., grades, special awards, privileges).

* 9. In even the most demanding subject areas, acquisition of academic knowledge is or can be made interesting and appealing to everyone.

*10. Planning for instruction should almost always begin with a systematic diagnosis of student needs.

*From an objective setting study conducted in Spring, 1984. Full report of knowledge objective and educational beliefs objectives may be found in:
Schumacher, S, Esham, K., & Bauer, D. (1985). Evaluation of a Collaborative Education Program: Planning, Development and Implementation, Phase III. Richmond, Virginia, Virginia Commonwealth University, School of Education. (ERIC Document Reproduction Services ED 268 119).

APPENDIX C

ANALYSIS OF THE ENTERING TEACHER CANDIDATE SURVEY AND THE GRADUATING TEACHER CANDIDATE SURVEY

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DESCRIPTION OF THE ENTERING TEACHER CANDIDATES

The School of Education at Virginia Commonwealth University has made an ongoing committment to understand the characteristics of the students it admits to the teacher preparation programs and as well as the students who complete the program. To meet that goal the Entering Teacher Candidate Survey and the Graduating Teacher Candidate Survey have been administered each fall and spring semester since the 1985-1986 academic year. Together the surveys provide a picture of the students' demographic characteristics, career plans, orientation to teaching, self-efficacy, and educational beliefs that would facilitate program planning and measure desired student outcomes. This report summarizes that data.

The Entering Teacher Candidate Survey (ETCS) and the Graduating Teacher Candidate Survey (GTCS) are adaptations of instruments developed by Michigan State University (Schumacher, Esham, & Bauer, 1985). The adaptation of the ETCS was field tested in the Fall, 1984 and three items were slightly revised. The adaptation of the GTCS was field tested during Fall, 1985, and a number of items from the RATE survey were added for Spring, 1986.

The 200 items on the ETCS provide a number of components that are designed to give comprehensive information on the students who enter our teacher preparation program. These components include demographics, high school background and activities, college background, career plans, reasons for becoming a teacher, orientation to teaching and education, educational beliefs, and self-efficacy of teaching roles. The 156 item GTCS repeats questions from the ETCS about educational beliefs, orientation to teaching and education, self-efficacy, and career plans, and adds items that critique the teacher education program.

The ETCS was administered each fall and spring semester from 1985 through 1989 to the beginning students during the first week of the semester in which they took their first course in the teacher preparation program. All students in the student teaching seminar from Spring, 1986 through Spring, 1989 were asked to complete the GTCS during the last week of the semester.

In all 1,125 entering surveys including approximately 14% from non-education students who took the course and 443 graduating surveys were entered into the data set.

The surveys were completed on scan sheets and machine read and stored in the IBM mainframe computer for analysis. The data were reviewed for errors and ommissions. Original questionnaires were checked whenever possible to supply missing data. The set of ETCS data and the set of GTCS data were merged by matching the social security number of the respondants in each data set. The merged set resulted in 227 matched questionnaires (105 elementary, 85 secondary, 26 special education, and 11 physical education and other education students) on which the following analyses are based. The failure to match all 439 graduating surveys could be accounted for by errors in social security numbers, and no available entering questionnaire because the students took the beginning courses during the summer semester or were absent on the day of data collection, or declined to participate.

The final sample is largely white (94%, 5% Black, 1% Asian or Hispanic) and female (76%). Forty-six percent entered the teacher preparation program at 21 years of age or younger, 42% were between the ages of 22 and 30, and 12% were over 30 years of age. The age breakdown, racial composition, and gender composition of this sample is nearly identical to the full entering sample. Additional demographic data is provided in later sections.

Obvious errors and invalid codes in the final sample were treated as missing data. In the self-efficacy scale, if the number of missing data points amounted to less than 75% of the scale each was replaced with the individual's average score (DeVaus, 1986). Three students were eliminated from the self-efficacy analyses because they completed less than 75% of that subscale. Similarly, for the analysis of the educational beliefs inventory, missing data for each item was replaced with the respondant's average score for the subscale (pedagogy, students, teaching mileau, curriculum, and teachers). In all other cases subjects with missing data were only eliminated from the analysis in which the data was missing.

The analyses performed included both descriptive and inferential statistics. Primarily Chi-square analyses were used to compare the frequency of response among students in different majors or with other characteristics of interest. In addition, the scores for the 15 items on the self-efficacy scale were summed and the internal consistency of the scale was determined to be .95. In addition, a repeated measures analysis determined the difference in the total scale score from enter to exit. Reliability analyses (alpha coefficients) were performed on the subscales of the educational beliefs inventory in an effort to replicate Brouseau, Book, and Byers (1988).

Demographics

As Table 1 indicates, only about half of the undergraduate students entering the School of Education's teacher preparation program fit the typical profile of a college junior. Over half (54%) are older than the typical college junior of 21 years, and 12% are over 30 years of age. Only 69% of our students have not yet married. The majority are female (76%) and white (94%). This profile is similar to the national profile of teacher education students at doctorate granting institutions where 76% were female, 91.3% were white, and 70.1% were not married, (AACTE, 1988).

Forty-six percent of the students in the teacher education programs are first generation college students. The family income (combined income of parents or own income if self-supporting) of 43% is below $30,000. Sixty-two percent have two or more siblings.

Table 2, a description of how students allocate their time, indicates that they are busy. In addition to classwork, 58% work 10 or more hours a week, 88% spend 10 or more hours a week studying, and 42% spend some time each week in community service.

Opportunities for continued professional growth seem to be important to them as 56% expect to pursue an advanced degree.

TABLE 1

DEMOGRAPHICS OF SAMPLE AT ENTRY TO THE PROGRAM

Class Status:	17% sophomore
	57% junior
	10% senior
	16% post baccalaureate
Age:	46% less than 22
	42% 22-30
	12% over 30
Sex:	76% female
Marital Status:	69% single
	25% married
	6% separated, divorced, widowed
Ethnic Group:	94% White
	5% Black
	1%Asian, Hispanic
Family Income:	9% do not know
	25% less than $20,000/year
	18% between $20,000 and 30,000
	29% between $30,000 and $50,000
	19% over $50,000/year
Siblings:	9% none
	29% one
	33% two
	26% 3 to 6
	3% 7 or more
Highest Level Parent Education	4% grade school
	42% high school graduate
	30% some college
	15% Master's degree (MA, MS)
	9% Ph.D., M.D., D.D.S., or other advanced professional degree

TABLE 2

HOW STUDENTS SPEND THEIR TIME

	Hours Per Week			
	% none	% less than 10	% 10-20	% over 20
Work	32	10	30	28
Study	1	10	66	22
Community Service	57	33	8	1

High School Background and Activities

The vast majority (88%) of our entering teacher candidates were graduated from public high schools. Over half (56%) attended a suburban high school, and only 19% attended an inner-city or urban high school. The majority (54%) were members of graduating classes with fewer than 300 students (see Table 3). The home communities of these students are similar to both the national RATE (1988) sample which found that 48% of the education students lived in the suburbs and 21% lived in an urban setting and the Michigan State sample which found 51% graduating from a suburban high school and 14% graduating from an urban public high school (Book, Byers, & Freeman, 1983).

Teacher candidates seem to have taken good advantage of high school opportunities for intellectual and social development. About half of the students reported taking at least one advanced placement course and 26% had been elected to the National Honor Society (see Table 4). In addition to their academic involvement, over 50% of the entering teacher candidates reported moderate to high involvement in the following extra curricular activities: school sponsored clubs, committees, or organizations; reading for pleasure; and part-time paid employment. Also popular were interscholastic athletics and church related activities. The median number of high school activities in which students reported some involvement is seven (see Table 5). Preservice teachers often participated fully in these activities through leadership positions. Many were officers of school clubs/organizations/committees (57%) and student government (35%). The median number of leadership positions reported was two (see Table 6). The relatively high proportion of advanced classes and participation in high school activities also corroborates the Michigan State sample and suggests that prospective teachers are successful in school and like school.

The majority of the students (90%) also sought opportunities in high school to work with children, but only 19% of them worked with handicapped children. Work experience often involved babysitting for someone other than a relative (76%) (see Table 7).

TABLE 3

HIGH SCHOOL BACKGROUND[1]

	%
3. Approximately how many students were in your high school class?	
1) less than 50	7
2) 50 - 100	12
3) 101 - 300	35
4) 301 - 500	26
5) over 500 students	20
4. Which of the following best describes the setting of the high school from which you graduated?	
1) inner-city	4
2) urban/city	15
3) suburban	56
4) rural	24
5. Which of the following best describes the type of high school from which you graduated?	
1) public	88
2) private/religious	7
3) private/non-religious	5

[1]Throughout this report the question number corresponds to its position in the survey.

TABLE 4

ESTIMATE OF THE NUMBER OF YEARS OF

COURSEWORK COMPLETED DURING GRADES 9 THROUGH 12

	Percent (%) Number of Years:				
	None	One	Two	Three	Four or more
6. English (include lit. & composi.)	1	0	1	3	95*
7. Natural Science (bio/chem/physics)	0	11	34*	31	24
8. Social Science (psych/socio/anthro)	40	38	15	3*	4
9. History/Social Studies	0	4	14	39*	44
10. Mathematics (other than gen. math)	1	4	14*	33	48
11. Fine arts (art, music, drama)	28	26	17	12	17
12. Foreign Language	7	11	38	24	20
13. Business/Distrib. (typing/ bookkeeping)	18	49	23	8	2
14. Voc/Tech Ed. (auto mech./home economics)	50	32	13	3	1

***Minimum for admission to VCU; category 8 & 9 are combined for admission requirements.**

	%
15. How many advanced placement courses did you complete during high school?	
1) 1 - 2	34
2) 3 - 4	10
3) 5 or more	7
4) none	23
5) none offered at my school	25
25. Were you elected to the National Honor Society?	
1) yes	26
2) no	69
3) no National Honor Society chapter at my school	5

TABLE 5

PERCENT WHO WERE INVOLVED IN HIGH SCHOOL ACTIVITIES

Activity	% Level of Activity/Involvement None	Some	Moderate	High
16. Choir, band, and/or orchestra	63	10	8	19
17. Theater and/or debate	55	23	10	12
18. School newspaper and/or yearbook	61	15	10	14
19. School sponsored clubs, committees, or organizations	11	28	25	36
20. Interscholastic athletics and/or cheerleading	40	14	12	34
21. Intramural athletics	64	21	8	7
22. Community service or other volunteer activities	28	37	19	16
23. Church related activities	29	27	21	23
24. Travel within the U.S. and Canada	26	39	26	10
25. Travel in foreign countries	85	6	4	4
26. Reading for pleasure	6	29	23	42
27. Part-time paid employment	14	21	27	38

TABLE 6

PERCENT WHO HELD LEADERSHIP POSITIONS IN HIGH SCHOOL

Position	% Yes	% No
29. Editor of school newspaper/yearbook	11	89
30. Officer or chair of school club/organization/committee	57	43
31. Student council/government	35	65
32. Coach or leader of youth activities	30	70
33. Class officer	23	77
34. Captain athletics/cheerleading	27	73
35. Leader school band/choir/theatre	18	82
36. Other (please specify) _____	17	83

TABLE 7

PERCENT WHO INTERACTED WITH CHILDREN IN GRADES K-8

Position	% Yes	% No
37. Camp counselor	20	80
38. Coach of youth sports	14	86
39. Sunday school teacher	27	73
40. Swimming instructor	10	90
41. Babysitting (other than relatives)	76	24
42. Other teaching activities involving only one child (e.g., tutoring, piano lessons)	30	70
43. Other teaching activities involving groups of children	44	56
44. Did any of the activities you checked in items 37 - 43 involve working with handicapped children?	19	72

College Background

Most of the students (69%) knew they would go to college before they entered high school. The majority (59%) of the teacher candidates began their degrees at an institution other than VCU.

The college background of the majority of the preservice teachers does not fit the stereotype that education students are poor students. At least 16% are working toward their second degree. The majority (71%) have been required to write at least 5 papers so far in their career. Only about 25% of these students took a remedial mathematics course and only 6 - 7% took remedial reading or writing courses (see Tables 8 and 9).

Reasons For Becoming a Teacher

Although many students knew that they would go to college before they entered high school, the majority of the preservice students didn't decide to become a teacher until after they graduated from high school. About 43% made that decision on their own and about 30% said that a former teacher influenced their decision. When considering reasons for becoming a teacher, the reasons most frequently chosen by the entering teacher candidates indicate that they expect satisfaction and fulfillment in helping students learn. The reasons given by over 75% of the respondents, in order of importance were (candidates could respond to more than one):

a. Through teaching I can help students gain a sense of personal achievement and self-esteem.

b. Through teaching I can help youngsters become excited about learning new things.

c. I love to work with children.

d. I believe that the quality of education must be improved.

e. Teaching is more likely to provide a sense of personal achievement and satisfaction than is true of other careers I might enter.

f. Through teaching I can help students gain knowledge and understanding of subject areas I consider important.

TABLE 8

COLLEGE BACKGROUND

	%
45. At what age did you first realize you would be going to college?	
1) During grade school years or earlier	16
2) During my junior high/middle school years	14
3) During high school	21
4) After high school	10
5) I have expected to go to college for as long as I can remember	39
46. Did you transfer to VCU from some other college/university?	
1) yes	59
2) no	41
47. What is your current class status?	
1) Freshman	1
2) Sophomore	16
3) Junior	57
4) Senior	10
5) Post B.A., B.S. degree	16
48. Do you intend to earn a second teaching endorsement in addition to he certification you are currently working on?	
1) no	28
2) undecided	50
3) yes, K-4	3
4) yes, 4-8	7
5) yes, 8-12	12
52. About how many papers (5 or more typed pages in length) have you been required to write in college?	
1) none	2
2) 1 - 4	26
3) 5 - 8	31
4) 9 - 12	13
5) more than 12	27

TABLE 9

PERCENT WHO PARTICIPATED IN REMEDIAL CLASSES AT VCU OR ANOTHER COLLEGE

Subject	% No	% Yes Required	% Yes Voluntary
Math	74	23	3
Reading	93	5	2
Writing	94	5	1

g. Teaching provides an opportunity to be creative.

The least frequent reasons, given by fewer than 25% of the candidates, in decreasing order of importance were:

a. Teaching and scholarship go hand in hand.

b. I was not successful as I had hoped to be in course that would have prepared me for my initial choice of careers.

Stereotypical reasons were not endorsed by many students. Only 36% agreed that "Teaching is a good career for a woman -- relatively easy to interrupt for raising a family and then to resume." Only 44% chose teaching because "teachers have a lot of time off, especially during the summer."

Reasons for choosing teaching as a career did show a few statistically significant differences ($p<.05$) by teaching major. Choosing teaching because "I love to work with children" was more characteristic of the elementary and special education students than either the special education or other education students. This is consistent with other research that shows an emphasis on caring and loving children for elementary teachers (Weinstein, 1989). Becoming a teacher because "through teaching I can help youngsters become more excited about learning new things" was less characteristic of the other education students perhaps because it implies a greater concern with the intellectual goals of schooling. Those who choose teaching because "through teaching I can help students develop an appreciation for cultures other than their own" are more likely to be elementary and secondary students. Finally, secondary and special education students were more likely to say that "teaching provides an opportunity to apply what I have learned in my major field of study." It will be interesting to see if elementary and "other" education students support this reason more often in the Extended Teacher Preparation Program.

TABLE 10

REASONS FOR BECOMING A TEACHER

	% Yes	% No
98. Teaching provides an opportunity to be creative.	76	24
99. I believe that the quality of education must be improved.	79	21
100. I love to work with children.	87	13
101. I have always enjoyed school.	45	55
102. Teaching provides an opportunity to help others who are less fortunate than myself.	51	49
103. Teaching is a good career for a woman - relatively easy to interrupt for raising a family and then to resume.	36	64
104. I was not as successful as I had hoped to be in course that would have prepared me for my initial choice of careers.	11	89
105. People I respect have encouraged me to become a teacher.	49	51
106. Teaching provides an opportunity to apply what I have learned in my major field of study.	65	35
107. Teaching and scholarship go hand in hand.	22	78
108. Although the salaries of teachers may not be very high, they are at least adequate.	58	42
109. Teachers have a lot of time off, especially during the summer.	44	56
110. Teaching will give me an opportunity to do other things I want to do such as counseling, coaching, or school administration.	54	46
111. Through teaching I can help students gain a sense of personal achievement and self esteem.	94	6
112. Through teaching, I can help students develop an appreciation for cultures other than their own.	65	35
113. I can make better use of my abilities in teaching than in other careers I might enter.	71	29
114. Through teaching, I can help students gain knowledge and understanding of subject areas I consider important.	77	23
115. Teaching is more likely to provide a sense of personal achievement and satisfaction than is true of other careers I might enter.	79	21
116. Through teaching, I can help youngsters become excited about learning new things.	94	6

TABLE 11

REASONS FOR BECOMING A TEACHER: DIFFERENCES BY MAJOR

	Percent yes			
	E	Se	Sp	O
I love to work with children	95	74	96	77*
Through teaching, I can help youngsters become excited about learning new things	95	96	96	71
Through teaching, I can help students develop an appreciation for cultures other than their own	71	68	42	43
Teaching provides an opportunity to apply what I have learned in my major field of study	55	77	70	57

* E=elementary
Se=secondary
Sp=special education
O=other education

Expectations Regarding Professional Preparation

As they enter the teacher preparation program, students' perceptions about how they will learn to teach seem to reflect an attitude that "experience is the best teacher." The four sources of professional knowledge viewed as very important or crucial by at least 90% of the respondants were:

1) On-the-job experience as a teacher;
2) Courses that require field experience in the schools;
3) Experiences in schools that are part of the teacher preparation program (e.g., practica and student teaching);
4) Courses in the content area you intend to teach (e.g., your major field of study or your teaching major and minor).

General studies was the least valued source of professional knowledge rated as having somewhat or little importance by 38% of the elementary students, 42% of the special education students and 27% of the secondary students. Students with this attitude may have a difficult time adapting to the view of a teacher as a liberally educated person. The remaining sources of professional knowledge in Table 12 were rated as important by the majority of students.

CHANGES DURING TEACHER PREPARATION

Orientation To Teaching And Education

As noted in Appendix A, all interviewed faculty agreed that education students should have a sense of the intellectual, social, and emotional goals of education. Emotional and social growth were valued more by the special education faculty who were interviewed. While the faculty were asked an open ended question, students were forced to rank the three goals to choose the most and least important goal of schooling. Overall, students seemed to rank intellectual growth before emotional growth, and social growth last (see Table 13). This ranking is most pronounced on the

TABLE 12

ATTITUDES TOWARD SOURCES OF PROFESSIONAL KNOWLEDGE

KEY: C = Crucial; VI = Very Important; I = Important; SI = Somewhat Important; L = Limited

	% C	% VI	% I	% SI	% L
86. Courses in the content area you intend to teach (e.g., your major field of study or your teaching major and minor).	82	12	5	1	0
87. General university courses (i.e., courses that satisfy the university's general studies requirement, not those offered by the School of Education).	3	17	44	31	5
88. Courses that focus on methods of teaching (e.g., methods of teaching reading, science, social studies, etc.).	59	30	8	2	1
89. Educational psychology courses (e.g., human development and learning, pupil evaluation, psychology in the classroom).	34	43	16	5	2
90. Course in the foundations of education.	15	24	40	16	4
91. Courses that require field experiences in the schools.	77	18	4	0	1
92. Participating in research projects that focus on teaching or teacher education.	18	30	35	13	4
93. Reading books or articles you have selected that deal with education or your major field of study.	15	40	34	10	1
94. Experiences in schools that are a part of the teacher preparation program (e.g., practicum and student teaching).	75	20	4	0	1
95. Your observations and experiences as a kindergarten through 12th grade student.	26	28	28	12	6
96. Working with groups of children in non-school settings (e.g., Sunday school teacher, camp counselor).	9	31	40	16	5
97. On-the-job experience as a teacher.	82	16	1	1	0

TABLE 13

ORIENTATION TO EDUCATION

General Goals of Schooling	% Most Important Enter	% Most Important Exit	% Least Important Enter	% Least Important Exit
1) To promote intellectual growth (e.g., gaining academic knowledge and understanding; learning how to learn)	47	62	30	22
2) To enhance emotional growth (e.g., coping with emotional stress; developing a sense of dignity and self worth)	45	25	18	30
3) To facilitate social growth (e.g., respecting the rights and values of others; accepting social responsibilities)	8	14	52	48

Attributes of Student Failure	% Most Frequent Enter	% Most Frequent Exit	% Least Frequent Enter	% Least Frequent Exit
1) student's home background	14	25	12	8
2) student's lack of intellectual ability	1	1	60	65
3) student's indifference or lack of academic motivation	54	44	4	6
4) teacher's failure to consider the unique interests/abilities of students	16	13	11	9
5) teacher's failure to use effective methods of teaching	16	17	13	12

	% Enter	% Exit
120. Which of the following qualities is most characteristic of exceptional teachers you have known?		
1) knowledge of the subject matter	27	16
2) personal interest in individual students	64	65
3) sensitivity to the cultural backgrounds of students	1	3
4) skills in classroom management	8	22
121. Which of the following would bring you the greatest sense of satisfaction as a teacher? To be recognized for your ability to...		
1) work effectively with students who come from diverse backgrounds (e.g., different social classes, races, or culture)	16	24
2) promote high levels of academic achievement	38	32
3) successfully encourage youngsters to accept responsibility for their own beliefs and actions	45	44

exit questionnaire as more students saw intellectual growth as the most important goal (47% vs. 62%) and fewer students saw emotional growth as the most important goal (45% vs. 27%). No differences by major were significant, however, special education students were least likely to rate intellectual growth as the most important goal (44%). While more graduating students believe that the goal of schooling is learning, it is disturbing that so many, including over half of the special education students do not see intellectual growth as their primary goal. Perhaps these students do not see the positive relationship between academic success and self esteem. This question as posed does not allow students to indicate how much more important they think intellectual growth is than emotional or social growth.

As noted in Appendix A, the faculty members who were interviewed felt that preservice teachers should attribute student failure to areas that teachers can influence, indicating an internal locus of control. In contrast, the preservice teachers tended to choose student variables at entry and exit. As Table 13 indicates, 54% of the entering and 44% of the graduating teacher candidates rated "student's indifference or lack of academic motivation" as the most frequent source of academic failure. The least frequent source of students failure was perceived to be the student's intellectual ability chosen by 60% of the students when they entered the program and by 65% when they graduated. This emphasis on motivation rather than intellectual ability is positive because it suggests that preservice teachers believe that students have control over their success and failure. Nevertheless, their reluctance to choose factors that teachers control suggests that they may give up on students too easily. Teacher's failure to consider individual needs or use appropriate methods were considered as the most important source of student failure only by approximately 30% of the students on both the entering and graduating surveys (see Table 13).

The special education students showed an interesting change in their attributions for student failure from entry to exit. When they entered the program, 30% rated student's lack of intellectual ability as the least likely source of student failure. When they left the program, 58% took that

stand. The rejection of an internal, relatively stable cause for student failure suggests that they see more promise for these students to learn. No other differences by major were evident.

The faculty interviews indicated that teacher candidates should derive satisfaction from "working with students from diverse backgrounds" and "promoting high academic achievement" and "accepting responsibility for their own beliefs and actions." When asked to choose from among the three, no clear consensus among the teacher candidates emerged (see Table 14), although the students did choose the combination of social and personal goals over academic goals by a 2 to 1 margin. The most frequently chosen source of satisfaction from teaching was "encouraging youngsters to accept responsibility" (44%) at both entry and exit. There was a slight increase in wanting satisfaction from "working with students from diverse backgrounds" from entry (16%) to graduation (24%). It is surprising that students say that they would derive the most satisfaction from promoting the social goals that they rate as least important in Table 13. It might suggest that students rate intellectual, social and emotional goals very similarily.

The following questions were only asked of students when they entered the teacher preparation program. Almost half of the students (47%) viewed their "ability to communicate knowledge at a level students understand" to be the most essential to their success as a teacher. Their "ability to establish a cooperative learning environment where students take responsibility for their own learning and that of others" was viewed as most essential by 30% (see Table 14).

A majority (63%) felt that they were most likely to excell in "establishing classroom routines that ensure that students are engaged in productive activities throughout each lesson." A majority (62%) viewed "motivating all students to learn the subjects you are teaching" as most challenging.

The students were almost evenly split on whether they would prefer to work with "a highly motivated, enthusiastic learner" (40%) or "a student with a moderate level of academic motivation" (36%). Interestingly, a larger percentage (67%) of the post BA/BS students preferred a highly motivated, enthusiastic learner.

TABLE 14

ORIENTATION TO TEACHING AT ENTRY

	%
122. Which of the following do you feel will be most essential to your success as a teacher?	
1) ability to communicate knowledge at a level students understand	16
2) ability to establish a cooperative learning environment where students take responsibility for their own learning and that of others	38
3) ability to identify and process information that should be considered when making important educational decisions	45
4) ability to respond appropriately to differences in the academic, social, and cultural backgrounds of individual students	47
123. In which of the following areas are you most likely to excel?	
1) establishing classroom routines that ensure that students are engaged in productive activities throughout each lesson	30
2) designing lessons or instructional units that deal with topics that are not covered in the textbook or other classroom resources	3
3) mediating conflicts among students.	20
124. Which of the following do you view as most challenging?	
1) Making informed decisions about what your students need to learn.	63
2) Motivating all students to learn the subjects you are teaching.	
3) Establishing rapport with students whose values and cultural backgrounds are different from your own.	34
4) Establishing a classroom environment in which students treat all of their classmates with dignity and respect.	3
125. With which of the following students would you prefer to work?	8
1) A highly motivated, enthusiastic learner.	62
2) A student with a moderate level of academic motivation.	
3) One who must be challenged or somehow motivated to learn.	5
126. Which of the following statements provides the best description of how you hope your students will remember you 20 years from now?	25
1) I taught them to accept responsibility for their own beliefs and actions.	40
2) I was very sensitive to differences in the needs and abilities of individual students.	36
3) I pressed students to perform at their highest possible levels of academic achievement.	24
127. Which of the following events would bring you the greatest sense of pride as a teacher?	25
1) To learn that an outstanding student in the senior class told several others that you are the teacher from whom she learned the most.	46
2) To learn that another graduating senior told several others that you are the teacher who contributed the most to her self-confidence.	30
	32
	68

The propspective teachers seem to value the relationships they will form with students. The students most often (46%) wanted to be remembered by their students as "sensitive to differences in the needs and abilities of individual students." The majority thought the greatest sense of pride as a teacher would come from learning that "another graduating senior told several others that you are the teacher who contributed the most to her self-confidence" rather than from learning that "an outstanding student in the senior class told several others that you are the teacher from whom she learned the most" (32%). Similarly, the majority of students (65%) considered the most characteristic quality of the exceptional teachers they have known to be the personal interest they showed in individual students.

Self-efficacy of Teaching Roles

The self-efficacy instrument consists of 15 questions which ask students to rate on a 5-point Likert scale their confidence in performing the selected teaching roles. A rating of 1 corresponded to little or no confidence, and a 5 corresponded to complete confidence. The internal consistency of the self-efficacy questionnaire was determined to be highly reliable with a Chronbach's alpha of .95 for the entering student data. Overall self-efficacy scores were found to change from an average score of 3.06 (moderate self-efficacy) to an average score of 4.05 (high self-efficacy). A repeated measures analysis also demonstrated that self-efficacy for entering students differed among the majors and among students with varying numbers of leadership experiences in high school. These differences, however, disappeared by the time students graduated. This high level of confidence to teach is consistent with other research (eg., Book, Byers, & Freeman, 1983). Below is more detail on those repeated measures analyses and changes from entry to exit in individual items.

Repeated Measures Analyses

A 4 major (elementary, secondary, special education, and other education students) X 3 leadership experiences (0-2, 3-4, 5-7) repeated measures ANOVA was performed on the self-efficacy scores (at entry and exit from the teacher preparation program). The GLM repeated measures analysis for unequal sample sizes showed significant main effects of leadership experiences [F (2,212) = 5.21, p<.01] and self-efficacy [F (1,212) = 48.32, p<.001]. A significant interaction of self-efficacy X leadership [F (2,212) = 5.34, p<.01] and a significant interaction of self-efficacy X major [F (3,212) = 2.94, p<.05] were also found.

A closer examination of the leadership X self-efficacy interaction through a Scheffe post hoc test indicated that those with 0-2 leadership experiences scored significantly lower on self-efficacy when they entered the program (M=43) than those with 3-4 leadership experiences (M=50) and those with 5-7 leadership experiences (M=54). No differences were found on self-efficacy scores at the end of the program.

A closer examination of the major X self-efficacy interaction through a Scheffe post hoc test on the means of elementary (M=45), secondary (M=48), special education (M=41) and other education (M=52) students indicated only that special education students were significantly lower than the "other" education students at the beginning of the program. No differences were found between the means of the elementary (M=63), secondary (M=59), special education (M=59), and other education (M=61) students at the end of the teacher preparation program.

Changes in individual items

As Table 15 demonstrates, at entry to the program over half of the students felt high or complete confidence in their ability to perform the following roles:

establishing effective working relations with students who come from diverse backgrounds (e.g., different social classes, races, or cultures);

establishing effective working relations with other teachers and school administrators.

TABLE 15

SELF-EFFICACY FOR TEACHING ROLES WITH NO FURTHER COURSEWORK IN EDUCATION

(7-21) How much confidence do you have in your abilities to successfully perform each of the following teaching roles with no further coursework or experience in education?

	% High or Complete Confidence ENTRY	EXIT
7. Maximizing student understanding of subject matter	39	83
8. Deciding what content to teach	27	78
9. Designing lessons, units, and courses of study, i.e., curriculum development	27	82
10. Establishing effective working relations with students who come from diverse backgrounds (e.g., different social classes, races, or cultures)	54	90
11. Establishing effective working relations with students who have special needs (e.g., serious learning problems, visually impaired)	24	56
12. Establishing effective working relations with other teachers and school administrators	62	92
13. Managing the classroom environment in a way which minimize discipline problems	42	75
14. Establishing a classroom environment in which students actively take responsibility for themselves and for others in the group	37	76
15. Collecting and interpreting information regarding student needs and achievements	32	70
16. Applying effective methods of teaching specific subjects such as reading and mathematics	24	77
17. Providing instruction that addresses individual needs and achievements	28	77
18. Making instructional decisions in a sound and defensible manner	35	83
19. Motivating reluctant learners	37	64
20. Maintaining active student participation in classroom tasks	38	82
21. Identifying the relative strengths and shortcomings of your own classroom performance	39	88

At graduation, over 80% of the students felt high or complete confidence in their ability to perform the following roles:

maximizing student understanding of the subject matter;

designing lessons, units, and courses of study;

establishing effective working relations with students who come from diverse backgrounds (e.g., different social classes, races, or cultures);

establishing effective working relations with other teachers and school administrators;

making instructional decisions in a sound and defensible manner;

maintaining active student participation in classroom tasks;

identifying the relative strengths and shortcomings of your own classroom performance.

Those items which showed the most change were those in which the percent who claimed high to complete confidence increased by 50% between entry and exit. Those items were:

deciding what content to teach;

designing lessons, units, and courses of study;

applying effective methods of teaching specific subjects such as reading and mathematics.

Professional Beliefs Inventory

We examined the frequency of agreement to each of the 54 beliefs on the Educational Beliefs Inventory to determine those that were held by a majority of our students when they graduated. Over 70% of the students indicated either agreement or strong agreement with the 12 statements in Table 16. Nine of those beliefs were identified by Schumacher, Esham, and Bauer (1985) as crucial beliefs for students in VCU's School of Education. Only 66% of the students were in agreement with the remaining belief, "Educational equity should be defined in terms of equal opportunities to learn rather than equal educational achievements."

TABLE 16

BELIEFS SHARED BY OVER 70% OF THE STUDENTS

***	4.	All school-aged youngsters are capable of learning to accept responsibility for their own actions.
***	6.	Learning that is motivated by intrinsic rewards (e.g., needs and interests) is superior to that which is motivated by extrinsic rewards (e.g., grades, special awards, privileges).
, *	8.	Risk taking and making mistakes are essential components of social, emotional, and intellectual development.
, *	10.	Teachers should establish and enforce clear cut rules for acceptable student behavior.
	15.	In even the most demanding subject areas, acquisition of academic knowledge is or can be made interesting and appealing to everyone.
*	24.	Schools can reduce racism among students.
*, ***	39.	Students should be required to pass tests in reading, writing, and mathematics in order to graduate from high school.
*	43.	Because each group of students has a unique set of needs, teachers should develop different instructional objectives for each class.
, *	46.	To be a good teacher, one must be an enthusiastic, life-long learner.
**	47.	Planning for instruction should almost always begin with a systematic diagnosis of student needs.
**	54.	To be a good teacher, one must continually test and refine the assumptions and beliefs that guide his/her approach to teaching.
, *	55.	The development and delivery of a lesson plan should always be guided by a clear statement of what students are expected to learn.

* Not identified as a "crucial belief" by Schumacher et. al. (1985)
** Over 85% agreed with this statement
*** Over 33% strongly agreed with this statement

We attempted to replicate the Brousseau, Book, and Byer's (1988) analyses to establish the reliability of the subscales of the Educational Beliefs inventory. The values for Chronbach's Alpha were similar to theirs for the scales pedagogy (.43) classroom mileau (.36), teacher (.32), students (.32).

GRADUATING TEACHER CANDIDATES

Career Plans

Graduating teacher candidates show a strong committment to teaching. Fifty-six percent of the preservice teachers expect to teach for at least 10 years. Slightly more, however, expect to work fewer than five years when they graduated than when they entered the program (13.6% vs. 6.5%). Of those who expect to teach for less than ten years, 33% aspired to a more advanced position within the field of education, 38% expected to take time off to raise a family, and 24% expected to change careers to something other than education (see Table 17).

Teaching is the only career 60% of the students considered and it was the first choice of careers for 35% of them. At this point, the teacher candidates show little interest in other career goals (see Table 18). Eighty-nine percent hoped to find a teaching position immediately after graduation. Most of the students (93%) intended to search for a job in Virginia and only 56% were willing to consider a job in another state. In deciding between job offers, over 80% of the students rated the intellectual stimulation and affective/ interpersonal climate of the workplace, and salary/fringe benefits as having critical or high importance in deciding between job offers (see Table 19). Also considered important by over half of the students were opportunities for professional advancement and geographic location. Eighty-four percent wanted their first job to be in a public school and 68% preferred a suburban setting. Disappointingly, only 2% were interested in teaching in an inner-city school (see Table 17). In fact, a statistically significant relationship was found between the type of school attended and where students want to teach ($x^2 = 34.03$, $p < .001$).

TABLE 17

SUMMARY OF CAREER ASPIRATIONS

QUESTION		TOTAL %
2.	At what grade level would you prefer to teach? (please check only one response)	
(1)	Preschool	0
(2)	Early elementary (K-3)	40
(3)	Upper-elementary (4-6)	8
(4)	Middle-school/Junior high (7-9)	15
(5)	Senior high school (10-12)	37
3.	Which of the following describes the setting in which you would prefer to work?	
(1)	Inner city	2
(2)	Urban/city	9
(3)	Suburban	68
(4)	Rural	12
(5)	No preference	9
4.	In what type of school would you want to work?	
(1)	Public	84
(2)	Private/religious	3
(3)	Private/non-religious	3
(4)	No preference	10
5.	In what size (total number of students) school would you prefer to work?	
(1)	Small	16
(2)	Medium	59
(3)	Large	4
(4)	No preference	19
26.	Do you intend to search for a job in Virginia?	
(1)	Yes	93
(2)	No -> Skip to item 28	7

QUESTION			TOTAL %
27.	Would you be willing to leave Virginia to take a job in another state?		
	(1)	Yes	24
	(2)	Possibly	32
	(3)	No -> Skip to item 29	44
28.	If you look for a job outside of the state of Virginia, where will you concentrate your search?		
	(1)	Northeastern states(s)	22
	(2)	Southeastern state(s)	33
	(3)	Midwestern state(s)	11
	(4)	Far western state(s)	9
	(5)	No preference	24
35.	Which of the following best describes where teaching fits into your current career plans?		
	(1)	Teaching is the only career I am considering at this point in time.	60
	(2)	Teaching is my first choice of careers I am considering.	35
	(3)	Teaching has some appeal, but it is not my first choice among careers I am considering — Skip to item 49	4
	(4)	I do not intend to become a teacher	1
36.	Do you hope to find a teaching position immediately after college graduation?		
	(1)	Yes	89
	(2)	No - I plan to go to graduate school first	4
	(3)	No - I plan to work in another field first	1
	(4)	No - I plan to do something else for a while (e.g., travel, attend to family responsibilities, etc.), then look for a teaching position.	5

QUESTION		TOTAL %
37.	If you are successful in finding a job, what is your "best guess" of the length of time you will work as a teacher?	
	(1) less than 5 years	13
	(2) 5 - 10 years	31
	(3) more than 10 years (Skip to item 39)	56
38.	Why do you think you will leave teaching?	
	(1) To take (or prepare for) a more advanced position within the field of education	33
	(2) To raise a family	38
	(3) To change to (or prepare for) a career outside of education	24
	(4) Other _____	5
39.	How confident are you that you will be able to find a job as a teacher?	
	(1) Total confidence - I have already been offered a teaching position	15
	(2) Very confident - I am virtually certain I will find a teaching position	63
	(3) Moderate level of confidence	18
	(4) Some confidence	3
	(5) Little or not confidence - I believe my chances of finding a teaching position are less than one in ten.	1

TABLE 18

PERCENT OF RESPONSES TO EACH CAREER GOAL

		% Yes	% Possibly	% No
40.	Serving as a school administrator (e.g., building principal, department chair, or school superintendent)?	14	36	50
41.	Teaching in a non-school setting (e.g., educational director for an industrial firm)?	9	37	54
42.	Serving in a leadership role as the teachers' organization?	9	53	38
43.	Serving as an informal leader in your school (e.g., chair of textbook selection committee, facilitator of school - community relations)?	34	53	13
44.	Teaching in a junior college or university?	21	38	41
45.	Teaching in a school that is located in a foreign country?	8	32	60
46.	Serving as coach of a varsity team or cheerleading squad?	21	29	50

TABLE 19

FACTORS IN DECIDING WHICH JOB OFFERS TO ACCEPT

Factor	Level of Importance			
	% Critical	% High	% Moderate	% Low
Opportunity for professional advancement	23	40	29	8
Location close to family or relatives	15	38	28	10
Other aspects of geographical location	17	40	36	07
Salary/fringe benefits	37	48	14	01
Intellectual stimulation of workplace	39	43	15	02
Affective/interpersonal climate of workplace	47	42	10	0

Critique Of The Program

If they could do it over again, 55% definitely and 36% probably would enroll in VCU's teacher education program. It may be worth noting, however, that 15% of the special education students and 7% of the secondary students say they definitely would not enroll in VCU again. The majority (64%) rated their professional education courses as more time consuming than courses outside the School of Education.

Student Teaching

Ninety-two percent of the students said that they had total responsibility for teaching the entire class for at least three weeks. According to the students, only 73% were observed by their university supervisors in the classroom five or more times. The students rated the quality of feedback as excellent or exceptional for 53% of their university supervisors, for 80% of their cooperating teachers, and 37% of their principals or his/her designee (see Table 20). The professional role models observed in student teaching other than the cooperating teacher and principal were rated as excellent or exceptional by 68% of the student teachers. The school itself was rated as excellent or exceptional by 77% of the students. Overall, the experience left 87% of the students feeling as though they had a high or complete understanding of teaching as a dynamic profession.

Teaching Methods and Techniques

Lectures and group discussion appear to dominate professional education courses. Lectures were reported to occur frequently or always by 91% of the respondants and group discussion was reported to occur frequently or always by 64% of them. Methods rated as occurring sometimes by a majority of the students (usually 40-45%) are demonstrations, role-playing, guest lectures, and student presentations. Those methods rated as occurring rarely or never by over half of the students were case studies or critical incidents, field trips, micro teaching, and computer training (see Table 21).

TABLE 20

STUDENT RATINGS OF THE QUALITY OF FEEDBACK

DURING STUDENT TEACHING (IN PERCENT)

	% Excep-tional	% Excel-lent	% Adequate	% Inadequate	Poor
Cooperating teacher	46	34	12	05	03
University supervisor	22	31	31	09	07
Principal or his/her designee	14	23	34	14	16

TABLE 21

METHODS USED IN THE PROFESSIONAL EDUCATION PROGRAM

	% Never	% Rarely	% Sometimes	% Frequently	Always
70. Lectures	1	2	6	60	31
71. Demonstrations	2	20	40	35	3
72. Role-playing or simulations	10	27	44	17	2
73. Case studies or critical incidents	7	42	30	19	25
74. Field trips	47	35	13	5	1
75. Group discussion	0	8	27	50	14
76. Micro teaching	35	32	26	6	1
77. Guest lectures	8	26	40	22	4
78. Student presentations	2	14	45	35	4
79. Computer training	26	42	24	7	1
80. Performance measures in a lab or a field setting	20	22	32	20	6

Advising

During the course of their program teacher education students received academic advice from a number of people including: their advisor in their major field of study, their School of Education program advisor, other college instructors, parents/family, and friends/classmates. Friends and classmates were rated as very helpful by 70% of the students, almost twice the rate of School of Education program advisors (36%). In fact, other college instructors were rated as very helpful by 54% of the students, also more often than School of Education program advisors (see Table 22). It is difficult, however, to interpret this data since we don't know how often, or for what reasons, students looked for advice from the above individuals.

TABLE 22

STUDENTS' RATINGS OF QUALITY OF ACADEMIC ADVICE

(IN PERCENT)

Source	% Very Helpful	% Adequate	% Inadequate	% No Interactions of this Type
Friends/classmates	70	18	[illegible]	08
Other college instructors	54	34	07	05
Parents/family	49	28	08	14
Advisor in major field of study	44	30	21	05
School of Education program advisor	36	32	18	14

APPENDIX D

DESCRIPTION OF MEASURES FOR INDICATORS OF TEACHER EDUCATION PROGRAM QUALITY

Described below are the selected measures for the proposed indicator system for Teacher Education Program Quality which is presented in Figure 3, Chapter 4. The input measures are described first and followed by descriptions of outcome measures for admission and practice of the profession. In addition measures for two context variables are described.

INPUT MEASURES

The input indicators assess the candidate's general knowledge primarily acquired in the first two years of college. Input measures of a liberal education for all teacher candidates are the admission criteria for the teacher education program. A formal application between 60 and 90 hours of general studies is required in all teaching specializations. These measures include a 2.5 GPA in general studies, the NTE General Knowledge Examination, and the NTE Communication Skills Examination. Each of these are discussed below.

GPA in General Studies

A 2.5 GPA in general studies courses is required for admission to the teacher education program. The advisor analyzes the transcript to assure that the general studies courses meet the criteria for the selected academic major. Candidates must earn specified hours of credit in communications, science and mathematics, history, philosophy, literature and the arts during their first years at college as recommended by the selected academic major at the university.

NTE General Knowledge Examination

The National Teacher Examination of General Knowledge is a standardized examination designed to provide an objective measure of academic achievement for undergraduate general studies. The General Knowledge section is a timed test that assesses knowledge and understanding of various disciplines and their interrelationships in the areas of literature and fine arts, mathematics, science, and social sciences.

NTE Communication Skills Examination

The National Teacher Examination Communication Skills test assesses the candidate's knowledge and basic skills in the areas of listening, reading and writing in timed testing.

OUTCOME MEASURES: ADMISSION AND PRACTICE OF THE PROFESSION

Two kinds of outcome indicators are necessary for program quality: admission to the profession and practice of the profession. Outcome indicators of program quality for admission to the teaching profession are: a baccalaureate degree in an academic major, pedagogical knowledge, development of pedagogical reasoning/teaching skills and other valued outcomes. Measures include the GPA of the academic major or an awarded baccalaureate degree, the NTE Specialty Area and Professional Knowledge Examinations, the GPA in professional education courses, the Final Student Clinical Evaluation rating, BTAP scores, and the GTCS scales, i.e. self-efficacy, a conception of teaching, professional beliefs, multicultural sensitivity, and teaching commitment. Outcome measures for practice of the profession are the Alumni Survey and the Principal's Rating. Each of these measures are discussed below.

Academic Major in a Baccalaureate Degree

All teacher candidates must apply for graduation in the four year program. A minimum GPA of 3.0 is required in the academic major for the baccalaureate degree. For admission to the five year program, candidates must present an earned baccalaureate with a minimum of 3.0 GPA in the academic major. Students with a 2.7 to 2.9 GPA in the academic major may be provisionally admitted.

GPA of Professional Education

The required minimum GPA criteria in professional education is 3.0. In the four year programs, professional education courses are part of total GPA required for graduation. In the five year programs, the professional education courses are part of the total GPA required for a master's degree.

NTE Specialty Area Examination

All candidates must pass the NTE Specialty Area test in their selected academic discipline. The minimum required score for passing the Specialty Area tests is determined by the state of Virginia and differs with each academic major.

NTE Professional Knowledge Examination

All candidates must pass the Professional Knowledge test. The Professional Knowledge test consists of four separately timed sections. The primary emphases are in planning, implementing and evaluating instruction, managing learners and the instructional environment, and knowledge of how factors other than instruction influence learning. The minimum passing score is determined by the state of Virginia.

Final Student Clinical Evaluation Rating

All candidates are rated in their final clinical experience, i.e., student teaching/externship. The University Supervisor's Rating will serve as the measure because it represents a consensus of professional judgement based on evidence of the university supervisor, the cooperating teacher, and in some programs the principal and the subject specialist (district supervisor). In conferences, the teacher candidate is asked to explain his or her reasoning for instructional decisions, to evaluate and reflect on his or her performance and the class's performance, and to develop new comprehensions.

The Final Clinical Evaluation Rating Form is a high-inference observation instrument consisting of 7 scales. Because of the interrelationship of many knowledge structures of pedagogy, all seven scales are considered equally important. However, the first 5 scales relate more to pedagogical reasoning than the last two scales. These scales, in order, are: classroom management, planning, interactive skills, knowledge, evaluation, professional traits, and personal traits. Each scale contains three to seven items for observation and rating. Many of the items compliment with items on the ETCS and GTCS. Each candidate is rated on a five point Likert scale of "excellent," "above average," "average," below average," or "poor." Provision is made for "unknown" and for narrative comments regarding each of the seven scales.

The minimum rating criteria to obtain the program intent of "advanced beginner" phase of pedagogical reasoning (Berliner, 1988) is the rating of "excellent" and "above average" for the majority of the 37 behaviors on the rating form. Because the instrument assesses the development of pedagogical reasoning, teacher candidates are not expected to obtain the same rating in all 37 behaviors.

Beginning Teacher Assistance Program (BTAP)

The BTAP instrument is a low-inference observational schedule administered by the state of Virginia to assess a teacher's functional knowledge in 14 observable teaching behaviors. These 14 competencies are: academic learning time, accountability, clarity of structure, individual differences, evaluation, consistent rules, affective climate, learner self-concept, meaningfulness, planning, questioning skill, reinforcement. close supervision, and awareness. Trained BTAP observers record the teacher's classroom performance on forms which contain prespecified behaviors, situational, and setting times. Teachers are given three observation opportunities to demonstrate the competencies, each one conducted by three separate BTAP observers. The first assessment occurs in the beginning teacher's first semester of teaching.

All beginning teachers must demonstrate at least twelve (12) of the fourteen (14) competencies to meet the state certification requirement. The minimum passing criteria is determined by the state of Virginia.

Other Valued Outcomes: ETCS and GTCS Scales

Other valued outcomes include: self efficacy, conceptions of teaching, professional beliefs, multicultural sensitivity, teaching commitment and program critique.

Self-efficacy. The self-efficacy scale on the ETCS and GTCS consists of 17 teaching roles to determine teacher candidate level of confidence on a 5 point Likert scale from "little or no confidence" to "complete confidence." The 17 teaching roles include curriculum and instructional decisions, encouraging student participation and motivation, establishing effective working relations, and identifying the relative strengths and shortcomings of one's own classroom performance.

Conceptions of teaching. Items on the ETCS and GTCS assess how teacher candidates rate on a 5 point scale different teaching roles in terms of satisfaction, challenge, and success. In addition, two items explore the candidates' attributions of student failure. Two items determine candidates' rating of the importance of three goals of schooling on a Likert scale.

Professional beliefs. The professional beliefs inventory on the ETCS and GTCS consists of 12 belief statements which candidates rate on a 5 point scale from "strongly agree" to "strongly disagree." All statements showed significant differences in the pre-post analysis of teacher candidates from 1984 to 1989. Of these 12 statements, 9 were identified previously as a "crucial belief " of the faculty (Schumacher, et. al., 1985). Three other belief statements which had significant differences on the pre-post analysis were added to the professional belief inventory.

Multicultural sensitivity. Eleven items on different scales on the ETCS and GTCS are logically related to multicultural sensitivity. These items are drawn from the self-efficacy scale, reasons for teaching, career plans (preferred setting and school type) and conception of teaching items. Key words in identifying these items were "students with diverse backgrounds", "others who are less fortunate", "student achievement and self-esteem", "all classmates with dignity and respect", and "student's home background."

Teaching commitment. Several items on the ETCS and GTCS assess teacher candidates' commitment to teaching in terms of expected length of service as a teacher (number of years), reasons for leaving teaching in less than 5 years, and importance of teaching in the candidates's current career plans, Other items indirectly explore teaching commitment by assessing reasons for becoming a teacher, recency of the career choice, and influences on the career choice.

Program critique. Items on the GTCS focus on program critique in terms of quality of the final clinical experience, degree of rigor of professional education courses compared to academic

courses, the degree to which professional education contributed to intellectual qualities, expressive qualities, and critical thinking, research utilization, quality of potential role models, and academic advice.

Principal's Rating of First Year Teacher

The Principal's Rating is completed by principals of first year teachers who graduated from Virginia Commonwealth University. The principal rates the first year teacher on a four point scale in comparison to other first year teachers with respect to the teacher's general education knowledge, knowledge of the subject content, knowledge of instructional methods, human relations, and skills in teaching, classroom management, pupil evaluation, providing for individual differences. Many of these behaviors compliment other measures.

Alumni Survey

The Alumni Survey is sent in April in the year following graduation to all students who graduated that particular year. Graduates are asked to rate on a 5 point scale their experiences, knowledge and skills acquired while enrolled at Virginia Commonwealth University. The areas assessed include the quality of the facilities (library, classroom, laboratory), field experiences, general academic and professional courses, faculty competence, and instructional methods employed. In addition, students are asked to assess their own competence in the work place related to the education received. These areas include: general and professional knowledge, classroom management, providing for individual differences, human relations skills and evaluating pupil growth.

Employment data obtained includes which teaching specialization the occupation relates to and the employer's address. Graduates are asked if they have obtained a teaching certificate and if they actively sought or are seeking a teaching or related position in education.

CONTEXT VARIABLES

Context variables include demographics, both personal and program, and matriculation rates.

Demographic Data

Demographic data will be collected at different times in the program. Demographic data which describe student personal characteristics of a specific cohort include: high school background and activities, highest educational level of parents, prior experience with children, age, sex, ethnic group, present SES, marital status, and college time management.Demographic data will also identify the college background of students who 1) transferred from a community college, 2) earned an undergraduate degree in a academic major at the university, or 3) have an undergraduate degree prior to program application.

Programmatic data for undergraduates also include admission scores from the Scholastic Aptitude Test (SAT) or the American College Test (ACT). Students who enter the graduate program submit their test scores on the Graduate Record Examination (GRE) or the Miller Analogy Test (MAT).

Matriculation Rate

Data on matriculation rates will be collected at admission to the teacher preparation program, admission to graduate studies, and at graduation. It may be necessary to conduct a follow-up survey of students who do not continue the entire program.